UNITED STATES DISTRICT COURT
DISTRICT OF MASSACHUSETTS

NEW ENGLAND CARPENTERS HEALTH BENEFITS FUND; PIRELLI ARMSTRONG RETIREE MEDICAL BENEFITS TRUST; TEAMSTERS HEALTH & WELFARE FUND OF PHILADELPHIA AND VICINITY; and PHILADELPHIA FEDERATION OF TEACHERS HEALTH AND WELFARE FUND, Plaintiffs, v. FIRST DATABANK, INC., a Missouri Corporation; and McKESSON CORPORATION, a Delaware Corporation, Defendants	Civil Action No. 1:05-CV-11148-PBS

REBUTTAL DECLARATION OF RAYMOND S. HARTMAN IN SUPPORT OF PLAINTIFFS' MOTION FOR CLASS CERTIFICATION

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EXECUTIVE SUMMARY

I have been asked by Counsel to the named Plaintiffs and the Class in this matter to review and respond to the opposition to Plaintiffs' motion for Class certification. I have considered and analyze below this opposition. My conclusions remain, that using standard economic analysis, I can demonstrate Class-wide impact from the Scheme that raised prices on the brand named drugs at issue and that proof of damages on a Class-wide basis is also possible.

- The 5% Scheme caused Class-wide impact and injury. The AWPs of hundreds of drugs (reflecting more than 1400 NDCs) were clandestinely raised by simply reprogramming the parameter in the FDB computerized information system which calculates the AWPs reported to the industry based on the WACs reported to FDB by the drug manufacturers. Since these AWPs are the contractual basis of reimbursement rates paid by the Class members, this reprogramming had an immediate impact upon transaction prices, an impact no different than that of a straightforward price fixing case.
- I can demonstrate that the Scheme caused Class-wide impact and injury using common Class-wide evidence. This demonstration is fully supported by McKesson and industry documents acknowledging the impact. Under no theoretical or evidentiary showing is it possible to credibly demonstrate complete mitigation of the impact and injury.
- The formulaic methodology that I have put forward provides an accurate calculation of damages to the Class resulting from the Scheme. The methodology is based upon standard economic methods and explicitly incorporates the realities of reimbursement calculations on the part of the Class members.

In rebuttal, Dr. Willig attempts to argue, in most cases through conjectured examples, that the impact and injury of the Scheme "could have been" mitigated by a variety of market responses, which "may" therefore necessitate individualized examination of Class members. His attempts fail. He offers no factual evidence demonstrating that such mitigation was possible or did occur, overall or for individual Class members.

- He offers no factual evidence that any Class-member TPPs had knowledge of the Scheme. He offers no evidence that TPPs made use of such knowledge to renegotiate reimbursement rates in ways that mitigated the economic injury induced by the Scheme.
- He offers no factual evidence that any PBMs knew of the Scheme until it had been ongoing for some period of time. More importantly, the evidence he does provide indicates that only one PBM came to realize that some changes were underway though even that PBM nowhere acknowledges the actual Scheme at issue. However, the evidence indicates that this PBM's information was incomplete, and that the PBM was ambiguous about whether and how to use the information to its benefit or to the benefit of its client TPPs.
- I find no evidence in discovery materials or in the public press that indicates or even suggests that other PBMs and TPPs knew of or acted upon knowledge of the 5% Scheme. Indeed, unlike the AWP case, there is no need to examine whether numerous governmental reports, press stories, congressional hearings and the like transmitted knowledge to the market place. And there is nothing in the record to suggest that members of the Class had such knowledge.
- Absent a showing of actual knowledge or actual competitive response, Dr. Willig presents measures of trends in drug reimbursement over 1995-2005. He either asserts or implies that the changes he observes are a direct response to the 5% Scheme, when under proper analysis it is clear that they are not. All of the variations or changes in reimbursement terms he cites either occurred prior to implementation of the 5% Scheme or were induced by general market trends that began prior to the implementation of the 5% Scheme and merely continued during its implementation. Since they would have occurred absent the Scheme, proper economic analysis requires holding them constant for the purpose of analyzing the impact of the Scheme. I demonstrate this fact using Dr. Willig's own data for a ten-year trend summarizing discounts off AWP and dispensing fees revealed in the reimbursement rates paid by a large sample of TPPs.

Thus, my original opinions regarding Class-wide impact, injury and the calculation of the resulting economic damages remain unchanged.

I. QUALIFICATIONS

1. My name is Raymond S. Hartman. I have previously presented my qualifications to this Court in this matter, *New England Carpenters Health Benefits Fund, et al. v. First*

Databank, Inc., and McKesson Corporation.[1] Attachment A summarizes qualifications, including deposition and trial testimony, arising since submission of my last declaration. In performing this analysis, I have cited the materials listed in Attachment B.

II. OVERVIEW AND ANALSYIS

2. I have been asked by Plaintiffs' Counsel to review and critically respond to the opposition of McKesson to Class certification, specifically to the declaration of Dr. Willig.[2] I find that the opposition fails to alter the opinions set forth in my Affirmative Declaration in Support of Class Certification for several reasons.

3. First and foremost, Dr. Willig's analysis fails because he mischaracterizes the 5% Scheme and the market's ability to respond to it. The Scheme was simply and immediately effectuated whenever a relevant drug manufacturer, who previously used an AWP-to-WAC spread of 1.20, reported its new WAC to FDB. At that time, FDB merely flipped a computer switch that increased the spread to 1.25. The Scheme was thereby effectuated immediately and clandestinely for the relevant NDCs. Any entity reimbursing on the basis of FDB AWPs thereafter was impacted and injured. Dr. Willig incorrectly asserts that the market could negate the impact and injury arising from this Scheme. To do so, FDB's pricing practices and procedures had to be sufficiently transparent (indeed,

[1] Declaration of Raymond S. Hartman in Support of Plaintiffs' Motion for Class Certification, *New England Carpenters Health Benefits Fund, et al. v. First Databank, Inc., and McKesson Corporation*, United States District Court District of Massachusetts, C.A. No. 1:05-CV-11148-PBS, July 14, 2006; updated December 20, 2006 (hereafter *Hartman FDB Declaration and Hartman Updated FDB Declaration*). I shall also refer, where necessary, to my September 27, 2006 Declaration, *Impact and Cost Savings of the First Databank Settlement Agreement*, submitted in support of the proposed *FDB Settlement Agreement (*hereafter *Hartman FDB Settlement Declaration).*

[2] Expert Report of Robert D. Willig, *New England Carpenters Health Benefits Fund, et al. v. First Databank, Inc. and McKesson Corporation*, United States District Court, District of Massachusetts, C.A. No. 1:05-CV-11148-PBS, January 24, 2007 (henceforth *Willig Declaration*).

perfectly transparent) to render the 5% Scheme evident to the preponderance of relevant competitive entities *almost immediately* and competition among PBMs had to be *sufficiently perfect* to compete away the impact of the Scheme on the Class-member payors through immediate contract renegotiations. In real-world markets, such conditions are impossible. Certainly, no evidence has been presented to support assuming such conditions. Dr. Willig incorrectly infers that competition did work so effectively that *everything (or enough things) else did* change as a direct result of the implementation of the 5% Scheme to negate its impact and injury. These assertions fail as evidenced by the data and discovery materials.

4. Furthermore, Dr. Willig misapplies basic principles of economic theory to complex markets with no support from actual evidentiary materials.

a) Dr. Willig's testimony offers a limited historical review of trends in pharmaceutical markets and in patterns of reimbursement for self-administered drugs (SADs). He introduces hypothetical variations that *could occur* in the determinants of drug reimbursement.[3] However, he offers little or no evidence of actual changes in the determinants of reimbursement that *have occurred in direct response* to the challenged conduct.

b) Dr. Willig deconstructs my formulaic damage methodology into its constituent elements, but only analyzes how each element "could" or "can" or "might" or "may have" or "could have" changed in response to the 5% Scheme. In some places, he asserts that such changes "could be" sufficiently large so as to either eliminate any injury arising from the 5% Scheme[4] or even make the Plaintiffs better off as a result of the 5% Scheme.[5]

[3] The elements or determinants of reimbursement include, but are not limited to, the discount off AWP (d), the dispensing fee (df), the rebate-pass-through percentage, the administrative fees paid to PBMs, the design of tiered co-pays and their average level, the duration of contracts and the terms of renegotiation.

[4] See *Willig Declaration*, ¶ 43, where Dr. Willig states "My analysis of the role of PBMs in the self-administered branded prescription drug distribution business shows that PBMs facilitate the operation of market mechanisms that cause TPP reimbursement rates to return to or retain their levels that prevailed prior to the artificial change following the change in the AWP/WAC ratio and artificial inflation in AWP."

[5] See *Willig Declaration*, ¶ 82. I note in passing that if the equilibrium analysis Dr. Willig puts forward in his ¶¶ 32-38 were correct (*and it is not*), the market will return to the equilibrium that existed prior to the implementation of the 5% Scheme and the ***TPP Class members cannot be made better off***.

c) Dr. Willig incorrectly assumes a model of perfect transparency for this market. That is, he assumes that every participant in the market (drug manufacturers, wholesalers, PBMs, TPPs, TPAs) knew everything, immediately, in the same way regardless of how hidden the information may have been. This belief is made evident at his ¶ 40, where he asserts "There is no economically meaningful reason why the character of the dynamics of the responses to the settlement would differ significantly from responses to the AWP/WAC ratio change." In this reference, he is comparing the market response to the very public announcement of the *FDB Settlement Agreement* in this matter relative to the market response to the conspiracy that FDB and McKesson aggressively attempted to keep secret.[6]

   Belief that information in these markets is that transparent and that these two market responses would be the same is unsupported by economic theory and empirical event studies. Comparable assertions would be the following:

   - Announcement of a product recall would have the same effect upon economic variables of interest (product prices, equity values) as would non-public information regarding product performance secreted by the relevant product manufacturer.
   - Announcement of an informal FDA warning or a formal requirement of a black box warning would have the same effect upon economic variables of interest (product prices, amounts demanded, equity values) as would non-public preliminary indications of product performance, efficacy and/or safety.

   Economic theory and practical business realities predict that in both of these examples non-public information would have limited market effects.[7] Since knowledge of the price impacts of the Scheme was limited prior to the public announcement in the Settlement, as a matter of economic theory and business realities the effects of that knowledge were limited.

d) Where information is not transparent, Dr. Willig relies upon an equally unwarranted theory of perfect, instantaneous competition, which to him seems to have the following tenets.

   - Perfect diffusion of the relevant price information concerning the 5% Scheme would immediately result from competition by the important players (read

[6] In order to avoid detection and adverse market response, I understand the Scheme was often effectuated at those times when a drug manufacturer reported increases in WAC to FDB and many competitive entities did not monitor carefully enough the changes in the spread that were imposed with the concomitant publication of increased WAC and AWP. See ¶ 134 of the First Amended Class Action Complaint, *New England Carpenters Health Benefits Fund, et al. v. First Databank, Inc. and McKesson Corporation* (hereafter *Complaint*). If and when the Scheme was observed and contested by the manufacturer, I understand that FDB had sufficient market power to defeat such objections; see ¶ 135-6 of the *Complaint*.

[7] Indeed, I have formally measured the differential impact of public versus non-public information in regard to product quality and product recalls; see R. Hartman, "Product Quality and Market Efficiency: The Effect of Product Recalls on Resale Prices and Firm Valuation," *The Review of Economics and Statistics*, 69(2), May 1987.

PBMs) in the market.[8] Indeed, since "PBMs' function is to intermediate between retail pharmacies, manufacturers and TPPs," the PBMs "use[d] their size and access to data [to so] mediate" (his ¶ 67).

- PBMs would immediately compete with one another by passing through to TPPs 100% of an available increase in their margins, thereby forgoing completely and immediately any opportunity to increase their own bottom line.
- This assertion portrays PBMs as disinterested parties, almost non-profit ombudsmen, mediating pricing and contract disputes among a variety of contesting entities and bringing reimbursement rates back to pre-5% Scheme levels (see footnote 4 above). As discussed below, this characterization of PBM competition with regard to this alleged Scheme is incorrect. PBMs are profit-maximizing entities, with agendas of their own, and reasons to hold or withhold information concerning the Scheme for their competitive advantage.

5. See Attachment C for a more detailed analysis of these issues.

III. PROPER ANALYSIS CONFIRMS IMPACT AND INJURY TO THE CLASS

6. Dr. Willig's analysis fails to alter my conclusions regarding impact, injury and the calculation of damages. Dr. Willig offers only a broad overview of the variety of factors determining reimbursement for SADs. While all of the factors that he identifies do contribute to the determination of actual transactions prices (reimbursement rates), the major factor in that reimbursement formula remains the AWP.

He argues that as these other factors change over time, such changes "could" negate the injury induced by the 5% Scheme. He is correct in conjecturing that these other factors "could" have so changed in response to the Scheme. However, Dr. Willig has presented no evidence linking these changes to the 5% Scheme. Indeed, proper analysis indicates the contrary. That is, although factors affecting reimbursement rates have changed, they did not change in response to the 5% Scheme.

[8] The competitive paradigms he espouses are more appropriate to the markets with which he has demonstrated more compelling qualifications. Much of his research, publications and consulting seems to be related to telecommunication, power, transportation, and high tech industries.

7. Dr. Willig asserts that my analysis fails because I analyze the changes in reimbursement rates induced by the 5% Scheme, *everything else equal*. He incorrectly asserts that I ignore, *or hold equal*, all other changes in all other factors that he introduces. I do not. I recognize those changes and recognize that proper analysis indicates that changes in *those other factors* have been induced by competitive market forces **generally** over 1990-2005, **not by the 5% Scheme.** Proper comparative static[9] analysis requires *holding those changes constant or equal* for the purpose of demonstrating impact and injury and for calculating damages.

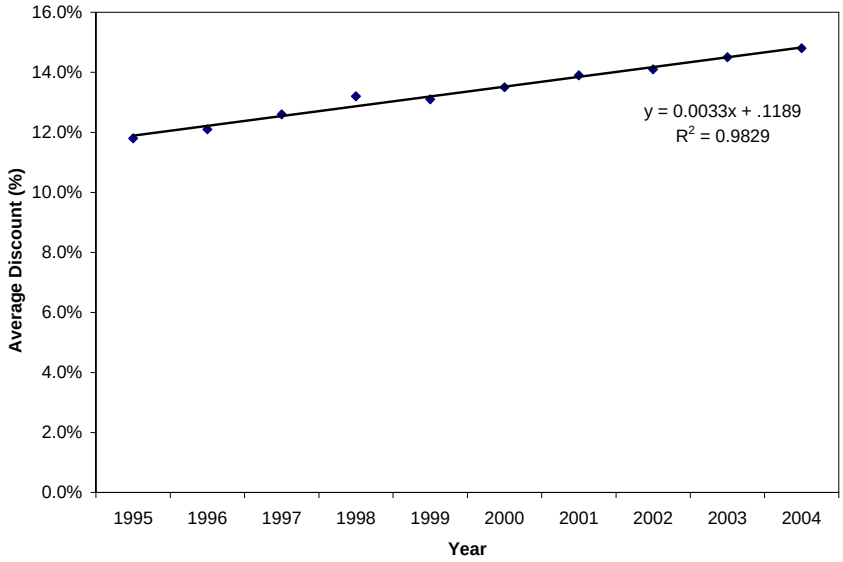
8. Instead, Dr. Willig either asserts or implies, with no supporting evidence that observed changes in reimbursement terms (discounts, dispensing fees, rebate-pass-through percentages, PBM administration fees, etc.) are induced by the 5% Scheme. There is no such evidence. Indeed, all of the variations he cites either **occurred prior to** implementation of the 5% Scheme or were induced by general market trends **that began prior to** the implementation of the 5% Scheme and continued unaffected after the Scheme was implemented. Since they would have occurred absent the Scheme, proper economic analysis requires holding them constant for the purpose of analyzing the impact of the Scheme.

9. Dr. Willig's own data support my interpretation and my assumptions. In his Table 2, he presents average discounts off AWP (d) and average dispensing fees (df) for retail and mail order branded prescription reimbursement. I analyze these data using regression methods in Attachment E to this Declaration. In Figures 1.a and 1.b, I

[9] I address his discussion of undergraduate comparative statics (found in his ¶¶ 32-36 and his footnote 39) in Attachment C.

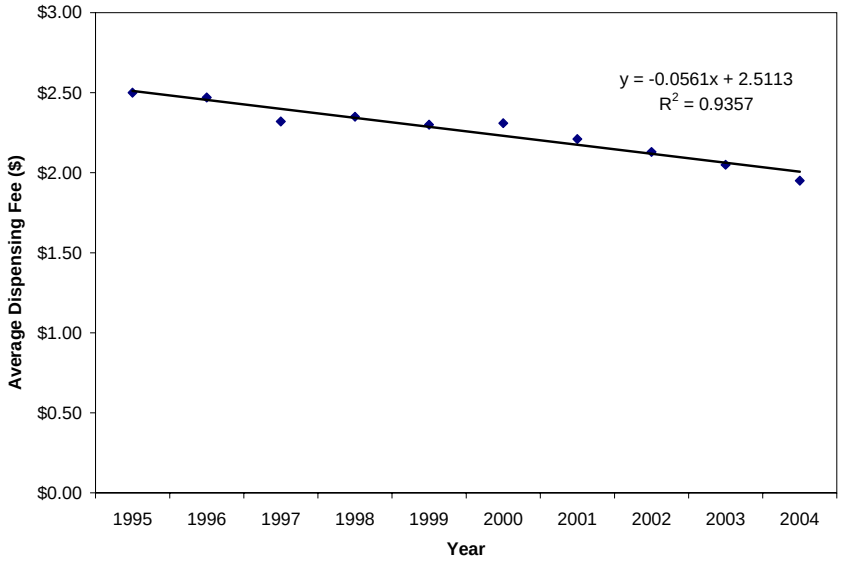
reproduce the regression lines summarizing market-wide trends for average discounts off AWP (d) and average dispensing fees (df) at retail pharmacies.[10]

Figure 1.a
Average Retail Reimbursement Discount off AWP
for Brand Drugs (1995-2004)



[10] Measures of df and d at mail order confirm the same trends; see Attachment C, Figures 1.c and 1.d. In addition, Attachment C further elaborates in much greater detail how the real world data put forward by Dr. Willig demonstrates that his conjectures are incorrect and unrealistic.

Figure 1.b
Average Retail Dispensing Fee for Brand Drugs (1995-2004)



Note the following:

a) If there were some response in d and df to the 5% Scheme, evidence should be apparent in measurable divergences from the historical trend. Specifically, in 2002-2004, we should see that discounts are above trend and dispensing fees are below trend, by an observable amount. **They are not**.

b) Discounts (d) at retail (Figure 1.a) are precisely on trend in 2003 and slightly below trend in 2002 and 2004.

c) Dispensing fees (df) at retail (Figure 1.b) are above trend in 2002 and slightly below trend in 2003 and 2004.

d) Any deviations from trend are much less important than the actual trends themselves. Over 1995-2005 discounts off AWP were rising while dispensing fees were falling, both at retail and at mail order.

e) Indeed, these revealed patterns support the motives for the allegations in this matter: that is, *everything else equal* (i.e., ***given these trends***), retailers approached McKesson and FDB to alleviate their profit squeeze. The 5% Scheme was a method to do so.[11]

f) Analysis of these data refutes Dr. Willig's assertions of fact and his conjectures concerning what "could occur." If the Scheme induced a measurable Class-wide response in 2002-2004, increases in discounts (d) and decreases in dispensing fees (df) should deviate, *by a substantial amount,* from market trends. They do not;

[11] It is interesting to note that not only would retailers benefit but so would mail order pharmacies. Many PBMs own their own mail order facilities and would benefit from increases in the AWP when contracts were not renegotiated with their TPPs, a clear incentive for PBMs to not inform their clients of the Scheme.

rather they reveal *a continuation of trends* that were well underway before the 5% Scheme was implemented.

g) These observed trends are part of *everything else held equal* across the actual ("post") and but-for ("pre") worlds.

10. Furthermore, substantial discovery materials demonstrate that McKesson understood the impacts of the Scheme upon payors; that these impacts would not be renegotiated away; and that economic injury would result.[12]

IV. MY AFFIRMATIVE ANALYSIS

11. In the updated December 20, 2006 version[13] of my original July 14, 2006 Declaration, I maintained the assumption that the allegations of the *Complaint* are true. Given those allegations, in addition to my analysis of the structure of the industry, the conduct by the relevant competitive entities in the industry and the evolution of competition in the industry since 1990,[14] I concluded that class-wide analysis was feasible and the most effective way of demonstrating impact, corroborating liability and measuring damages.

12. In measuring damages, I took the standard reimbursement formula for Class member TPPs:

(1) Allowed Amount (AA) = AWP (1.00 – d) + df,

[12] See Attachment F for a summary of McKesson documents which confirm:

- the benefit of the increase in the AWP/WAC spread to its customers (retailers);
- the continued benefit of the 5% Scheme to its customers even in 2004, certainly suggesting that the increases due to the 5% Scheme were not negotiated away; and
- the existence of industry trends.

[13] *Hartman Updated FDB Declaration*, ¶¶ 12-13.

[14] Some of which is developed in my September 3, 2004 Declaration in Support of Class Certification in, *In re Pharmaceutical Industry Average Wholesale Price Litigation*, MDL No. 1456, 01-CV-12257-PBS,. I have been extensively involved in pharmaceutical litigation since the *In Re Brand Name Prescription Drug* litigation.

where d is the percentage discount off AWP and df is the dispensing fee.[15] I remarked that while d and df may vary somewhat across Class members, the fact that AWP was inflated by the 5% Scheme implied that the reimbursement rate or amount allowed (AA) was higher than it would have been absent the Scheme. I note here that while d and df may vary across Class members, the most important determinant of reimbursement (AA) in Equation (1) is the AWP.

13. I proposed to calculate damages as follows. I assumed that while d, df and administrative fees paid to PBMs by TPPs have been changing over time, they **did not change in response** to the 5% Scheme. Hence, regardless of their variation over time and across TPPs, at any point in time, the effect of the 5% Scheme upon reimbursement rates (AA) is determined almost entirely by the impact of the Scheme upon AWP.

14. More specifically, damages are to be calculated as follows. Denoting the pre-Scheme AWP as AWP^{pre} and the post-Scheme AWP as AWP^{post}; and calculating the pre-Scheme allowed amount, AA^{pre}, and the post-Scheme allowed amount AA^{post} from Equation (1);[16] the extent to which reimbursement rates (AAs) were increased by the

[15] Extensive testimony supporting this formulation has been presented to this Court by Experts for drug manufacturers and by Professor Berndt (see ¶¶ 15 and 49, Ernst R. Berndt, Report of Independent Expert Professor Ernst R. Berndt to Judge Patti B. Saris, *In Re Pharmaceutical Industry Average Wholesale Price Litigation*, MDL No. 1456, Civil Action No. 01-12257-PBS, February 9, 2005 (hereafter "Berndt Report")). Judge Saris has recognized this formulation of drug reimbursement (see her Memorandum and Order re: Motion for Class Certification (hereafter *Memorandum and Order*), *In re: Pharmaceutical Industry Average Wholesale Price Litigation*, United States District Court District of Massachusetts, MDL No. 1456, Civil Action No. 01-12257, August 16, 2005, pp. 24-25). d is the percentage discount off AWP, expressed here as $0.00 < d < 1.00$. Defendants' Expert Young in the AWP matter, found the percentage discount to range between 14 and 18% (see Rebuttal Declaration of Steven Young, *In re Pharmaceutical Industry Average Wholesale Price Litigation*, MDL No. 1456, 01-CV-12257-PBS, ¶ 134).

[16] One can think of AWP^{pre} and AA^{pre} as but-for values and AWP^{post} and AA^{post} as actual values.

Scheme (by NDC) is denoted as $AA^{post} - AA^{pre} = \Delta AA$.[17] Given total units prescribed and reimbursed as Q, aggregate overcharge damages by NDC are calculated as

(2) Damages = $\Delta AA * Q$.

15. The data and data sources required to implement this damage calculation are identified in my December 20, 2006 Updated Declaration;[18] they are common to the Class. I demonstrated that the analysis and measurement of damages can and should be conducted Class-wide.[19] My proposed formulaic methodology is analogous to methodologies used to calculate the impact of price increases in a variety of contexts.[20] While the size of the damages induced by the impact and injury could be affected by rebate payments, I have demonstrated that the impact of such changes can be calculated and will be small.[21]

V. DR. WILLIG'S ASSERTION THAT VARIATION AMONG CLASS MEMBERS DEFEATS CLASS CERTIFICATION IS INCORRECT

16. Dr. Willig asserts, incorrectly, that issues of individuality and variation across Class members render the class device inappropriate for this litigation because of the

[17] Specifically, using Equation (1), $AA^{pre} = AWP^{pre}(1.00 - d) + df = p*AWP^{pre} + df$, where $p = (1 - d)$ and $0 < p < 1$. Similarly, $AA^{post} = p*AWP^{post} + df$. Since p and df (and administrative fees paid to PBMs) are not altered **in direct response** to the Scheme, $AA^{post} - AA^{pre} = \Delta AA = p*\Delta AWP$ is the impact of the Scheme upon Class member reimbursement per prescription. The formal analysis is found in ¶¶ 15, 20-22 of my December 20, 2006 Updated Declaration.

[18] *Hartman Updated FDB Declaration*, ¶ 15.

[19] *Ibid.*, ¶ 15.d).

[20] *Ibid.*, ¶ 15.e).

[21] In fact, deposition testimony in this matter confirms that rebates are typically not paid based on AWP benchmarks. Freebury testified that ESI is the only major PBM with AWP-based rebates and that AstraZeneca renegotiated with ESI to eliminate or reduce the AWP-based rebates on the grounds that AZ did not change their WACs and should not be penalized for these increased AWPs. This testimony undermines Dr. Willig's conjecture that greater rebates "could" or "would" broadly offset the cost of the 5% Scheme. (Deposition of John Richard Freeberry, In re Pharmaceutical Industry Average Wholesale Price Litigation, MDL No. 1456, 01-CV-12257-PB, pp. 126-130, May 20, 2004).

extensive "individual inquiry … required" of each Class member. This is a familiar Defense argument. These arguments are not compelling.

17. There is absolutely no market which does not involve variation across the individuals in the market. If variation in the factual situations of individuals constituting a market rendered aggregate economic analysis impossible unless each and every individual were explicitly included in the analysis, all standard and accepted forms of economic analysis would be impossible. The following *illogical* conclusions would ensue.

a) All econometric analysis and forecasting which rely upon samples of heterogeneous economic entities and/or individuals *would be unreliable and without merit*. Such analysis and forecasting calculates "averages" or "expected values" of economic variables, such as prices and reimbursement rates, rather than the exact amount for each individual or economic entity. This conclusion would hold for all applied econometric research and analysis.

b) Innovator drug manufacturers *would be wasting resources* if they developed and relied upon aggregate models and sample data (where the samples include quite heterogeneous consumers and physicians) to calculate and forecast the following: aggregate impact of promotional activity upon product demand; aggregate impact of innovator-product launch price upon aggregate demand and market share; aggregate impact upon demand of alternative price discount and rebate strategies; and the aggregate impact upon demand of generic launch.

c) Antitrust damages *could never* be calculated unless the actual world and the but-for world of *all* individuals harmed by the antitrust violation were explicitly analyzed and measured. In short, antitrust damages *could never* be calculated. Certainly, the courts and well-known academics would disagree.[22]

[22] While not a class action, Daniel Rubinfeld and Peter Steiner discuss regression methods to assess average price impacts and damages for a large group of plaintiffs in a pharmaceutical market (sales of ampicillin) subject to the same individual variabilities found here; see their discussion of *In re Ampicillin Antitrust Litigation*, 88 F.R.D. 174 (D.C. Cir. 1983) in D.L. Rubinfeld and P.O. Steiner, "Quantitative Methods in Antitrust Litigation," *Law and Contemporary Problems*, 46(4), Autumn 1983. See also Daniel Rubinfeld, "Reference Guide on Multiple Regression," pp. 179-227; and Robert E. Hall and Victoria A. Lazear, "Reference Guide of Estimation of Economic Losses in Damages Awards," pp. 277-332; both appearing in *Reference Manual on Scientific Evidence*, Second Edition, 2000, West Group.

Note that Daniel Rubinfeld is the Robert L. Bridges Professor of Law and Professor of Economics and is the Director of the Program in Law and Economics, University of California at Berkeley.

d) No class *would ever* be certified. Hence, the courts that certified the classes cited in footnote 18 to my December 20, 2006, FDB Declaration or courts that have certified classes in markets for other pharmaceuticals have done so in error.[23]

18. Dr. Willig's position may be more modest. He may believe that heterogeneity and variation among economic entities (and potential Class members) generally does not defeat econometric analysis, damage calculation and Class certification. However, he may believe that the specific variability in *this* market and *this* matter is *much greater* than that found in other markets and matters, and because variability across Class members is incrementally greater in this matter, Class certification is impossible and "individual inquiry would be required."

If true, however, Dr. Willig must put forward his bright-line threshold of variability and indicate how it is that this market and this matter exceed that threshold while all other markets identified above do not. He has not done so.

19. While Dr. Willig has introduced and appealed to variation and how such variation will vary the quantum of impact, injury and damages to individual TPPs, it is my understanding that it is unnecessary to calculate individual damages at this stage. It is my understanding that the formulaic methods that I have proposed must provide a sufficiently accurate calculation of aggregate damages.

My proposed methods will provide an accurate calculation of aggregate damages. Classes have been certified in matters alleging antitrust violations and fraudulent marketing practices in pharmaceutical markets and other markets where there was as much or more variability across individual Class members than is found in this market.

[23] See, for example, *In re Cardizem CD Antitrust Litigation*, Master File No. 98-MD-1278, 200 F.R.D. 326 (E. D. Mich. 2001); *In re Terazosin Hydrochloride Antitrust Litigation*, Case No. 99-MDL-1317 Seitz/Garber, United States District Court for the Southern District of Florida; and *Cipro Cases I and II,* Judicial Council Coordination Proceeding Nos. 4154 and 4220 (Superior Court, San Diego County).

The standard formulaic methods that I have proposed here were implemented in those matters to calculate damages. The methods rely upon survey information to develop representative average measures of prices or reimbursement across class members.

Indeed, Dr. Willig himself has put forward the type of survey information that I would use. Specifically, in my Figures 1.a and 1.b, I have reiterated his 10 years of average discounts off AWP (d) and dispensing fees (df) for a large sample of TPPs for retail pharmacies. Other sample information exists to enrich Dr. Willig's averages. I have seen individual TPP values of average d and df over time that are tightly distributed around Dr. Willig's averages. The use of such average values of reimbursement or prices is a standard method in applied economics and litigation. Indeed, it can be demonstrated that my formulaic method, which is based upon average measures of price and market penetration, will lead to an **exact** aggregation of individual TPP damages without performing a calculation for and summation of each and every individual TPP.

VI. DR. WILLIG MAKES INCORRECT ASSERTIONS ABOUT THE RELEVANT MARKETS

20. Dr. Willig's analysis incorrectly characterizes important aspects of reimbursement and competitive behavior in the markets in this matter. For example,

a) He makes contradictory statements about the determinants of reimbursement.
   - In his ¶¶ 35-36, he asserts that the AWP is an "artificially constructed price measure" with little relevance to actual transaction prices.[24] He states that

[24] Specifically he asserts, "[Dr. Hartman] assumes without any analysis, and contrary to logic, fact and economic methodology that actual prices follow an artificially constructed price measure (AWP)."

While this Court knows that the AWP is a list price and it "Ain't What's Paid," this Court has recognized the fundamental role of AWP in determining reimbursement rates for SADs and physician-administered drugs (PADs). In her Memorandum and Order re: Motion for Class Certification (hereafter *Memorandum and Order*), *In re: Pharmaceutical Industry Average Wholesale Price Litigation*, United States District Court District of Massachusetts, MDL No. 1456, Civil Action No. 01-12257, August 16, 2005, Judge Saris states (at p. 7), "Throughout the class period, from 1991 to the present, AWP has been the pricing benchmark for most pharmaceutical sales in the United States. (Hartman Decl. Attach. D ¶¶ 29-

"most analyses of actual pricing consider cost, demand, and the nature of competition to be the fundamental variables that determine prices. Artificially constructed price measures [i.e., list prices or AWP] do not enter these models, and thus actual prices are often taken to be independent of artificial prices."

- However, in the remainder of his declaration, he analyzes how the elements of reimbursement that he hypothesizes may or could negate the 5% Scheme **have in fact been determined by changes over time in AWP.**
- If AWPs are "artificial," "independent of" actual prices and should "not enter these models," Dr. Willig cannot appeal to increases in AWP over 1990-2005 as important determinants of the other factors affecting reimbursement.

b) He makes incorrect statements about the importance of U&C reimbursement.

- Dr. Willig suggests that the requirement in TPP reimbursement contracts that reimbursement be at the lesser of an AWP-based allowed amount or U&C (usual and customary charge) makes Class-wide analysis difficult. In support of this suggestion, Dr. Willig asserts in his footnote 37 "For a substantial portion of drugs the 'usual and customary' price was lower than AWP (DC3701067)."
- I have discussed reimbursement contracts at length in my testimony in the AWP-MDL matter and in the state AWP matters, and I have consistently recognized the fact that payors reimburse at the lesser of an AWP-based amount, other alternative reimbursement rates and the U&C.[25] I have incorporated that reality into my formulaic methodology here.
- In reality, U&C reimbursement is relevant almost only for cash payors. It has almost no relevance to TPP reimbursement. The U.S. General Accountability Office has documented this fact, stating "AWP is typically less than the U&C price. … The difference between the levels of AWP and U&C prices for brand drugs narrowed slightly during the time period we analyzed. Whereas in the first quarter of 2000 AWP was on average about 91% of the U&C price for the same drug, by the fourth quarter of 2004 AWP was on average about 94% of the U&C price."[26,27]

30; Schondelmeyer ¶ 36.)" In forming her opinion, Judge Saris relied upon Professor Ernst Berndt, who noted in his February 9, 2005 Report: "AWP has served as a reference or focal point, an industry standard for baseline reimbursement, and as such a fictional benchmark price from which discounts are frequently specified, directly or indirectly" (¶ 16); and "Recall that pharmacies are typically reimbursed by health plans/insurers/PBMs for drugs they dispense on the basis of a relatively simple formula, such as AWP - X% plus dispensing fee plus (occasionally) administrative fees. … [A]lmost all single source brand drugs are contractually reimbursed using AWP" (Berndt Report, ¶¶ 49 & 55).

[25] For my discussion of these contracts terms and the implications for reimbursement, see my declarations submitted in re the AWP litigation, both MDL and state specific.

[26] United States Government Accountability Office, Report to Congressional Requesters, *Prescription Drugs: Price Trends for Frequently Used Brand and Generic Drugs from 2000 through 2004*, GAO-05-779, August 2005, pp. 5, 12.

c) He makes incorrect assertions about economic theory.

- In his footnote 36, Dr. Willig asserts that it would make "no economic sense" for FDB to "use its monopoly position to raise the AWP/WAC spread," because FDB would instead raise the price of its information services. Quite the contrary, it would make perfect economic sense for the FDB to use its monopoly position in whatever ways it felt strategically optimal. The evidence suggests FDB did raise the prices of its information services, post merger.[28] However, there are a multitude of other behaviors enabled by monopoly power, *holding prices constant*, including, but not limited to, reducing product quality (to lower cost); reducing service quality (to lower cost); and implementing other desirable strategies to the monopolist (such as promoting its product to economic entities of strategic value, e.g., retailers).[29] A monopolist can both exploit price and effectuate other strategies precisely because consumers cannot switch to alternative sources to defeat those monopoly behaviors.

21. See Attachment C for additional discussion of Dr. Willig's analysis.

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[27] See Table 2 in Attachment C. Review of claims data for named Plaintiffs shows that the U&C prices reported in their claims data were greater than AWP 77% of the time (Philadelphia Federation of Teachers); 98% of the time (Teamsters); and 78% of the time (Pirelli Armstrong). For the remainder of the claims of all three named Plaintiffs, U&C was either equal to or greater than the contracted reimbursement rate (AWP-16% for Philadelphia Federation of Teachers, AWP-15.5% for Teamsters, and AWP-13% for Pirelli Armstrong), except for a *de minimis* number of claims for Pirelli and Teachers. Essentially no claims were paid at U&C by the Teamsters. See Teamsters Health and Welfare Fund claims data (THWF4808); the Pirelli Armstrong claims data (CMK-NECarp 000486); and the Philadelphia Federation of Teachers Health and Welfare claims data (PFTHW0156).

[28] See Complaint for Permanent Injunction and Other Equitable Relief Pursuant to Section 7A(g)(2) of the Clayton Act and Section 13(b) of the Federal Trade Commission Act, *Federal Trade Commission v. The Hearst Trust, The Hearst Corporation and First Databank, Inc.*, United States District Court for the District of Columbia, Civ. No. 1:01CV00734, ¶ 21.

[29] For example, the *Merger Guidelines* recognize such behavior as follows: "Market power to a seller is the ability profitably to maintain prices above competitive levels for a significant period of time. (Sellers with market power also may lessen competition on dimensions other than price, such as product quality, service, or innovation.)" Source: U. S. Department of Justice and Federal Trade Commission, *Horizontal Merger Guidelines*, 4 Trade Reg. Rep. (CCH) ¶ 13,104 (April 2, 1992), *as amended,* April 8, 1997, p. 2, as accessed at http://www.usdoj.gov/atr/public/guidelines/hmg.pdf.

Likewise, Dennis Carlton and Jeffrey Perloff in *Modern Industrial Organization* (p. 319) recognize: "…(W)hen consumers prefer different levels of quality, a monopoly manipulates the qualities of goods produced in the market to extract consumer surplus. The monopoly … chooses the quality spectrum so as to charge a high price to those who value the good the most, and a low price to those who value it the least…"

VII. SUMMARY AND CONCLUSIONS

22. Having reviewed Dr. Willig's declaration, I find that his analysis offers no factual evidence refuting the opinions set forth in my affirmative declaration concerning Class-wide impact, injury and the calculation of damages. His analysis looks at trends in drug reimbursement over 1995-2005 and either asserts or implies that the changes he observes are in direct response to the 5% Scheme, when under proper analysis it is clear that they are not. All of the variations he cites either **occurred prior to** implementation of the 5% Scheme or were induced by general market trends that **began prior to** the implementation of the 5% Scheme and **merely continued** during its implementation. Since they would have occurred absent the Scheme, proper analysis requires holding them constant for the purpose of analyzing the impact of the Scheme. In addition he makes a variety of analytic mistakes.

Given that his analysis offers no more than speculation and incorrect economic interpretations, I find his analysis does not alter my original opinions concerning impact, injury and the formulaic measurement of damages in this matter.

I declare that the foregoing is true under penalty of perjury.

/s/ Raymond S. Hartman

March 18, 2007

CERTIFICATE OF SERVICE

I hereby certify that a true copy of the above document was served upon the attorney of record for each other party through the Court's electronic filing service on March 19, 2007.

/s/ Steve W. Berman
Steve W. Berman

Attachment A

January 2007

Raymond S. Hartman
Curriculum Vita

Date of Birth: 3/31/47

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DEGREES

B.A. (MAGNA CUM LAUDE) Princeton University 1969
M.S. Massachusetts Institute of Technology 1971
Ph.D. Massachusetts Institute of Technology 1977

Ph.D. DISSERTATION

An Oligopolistic Pricing Model of the U.S. Copper Industry (MIT, 1977)

HONORS, SCHOLARSHIPS, AND FELLOWSHIPS

1969-71	National Science Foundation Fellowship to MIT
1965-69	Alfred P. Sloan Scholarship to Princeton
1969	Woodrow Wilson Fellowship Honorable Mention
1965	National Merit Scholarship Finalist

RESEARCH AND TEACHING INTERESTS

Econometrics/Statistics
The Economics of Regulated Industries
Energy and Environmental Economics
Microeconomics
Industrial Organization
Law and Economics

POSITIONS

1967-1969	Research Staff, Financial Research Center and Center for Economic Research, Princeton University
1970	Research Staff, Board of Governors, Federal Reserve Board, Washington, DC
1972-1992	Consultant and Staff Economist, Arthur D. Little, Inc.
1977-1984	Research Faculty, Massachusetts Institute of Technology
1977-1983	Assistant Professor, Department of Economics, Boston University
1983-1989	Associate Professor, Department of Economics, Boston University
1983-1988	Principal & Academic Principal, The Analysis Group
1988-1993	Visiting Associate Professor/Visiting Faculty, Boalt School of Law, University of California, Berkeley
1988-1995	Founding Principal, The Law and Economics Consulting Group
1995-1996	Vice President, Charles River Associates
1996-1999	Senior Consultant, Charles River Associates
1996-2000	Director, Cambridge Economics, Inc.
2000-2004	Special Consultant, Lexecon Inc.
1997-	Director and President, Greylock McKinnon Associates

OTHER PROFESSIONAL ACTIVITIES

Research Referee, *Bell/Rand Journal of Economics, Resources Policy, IPC Science and Technology Press, Management Science, Land Economics, Science, Energy Journal, Applied Economics, Econometrica, Review of Economics and Statistics, Journal of Business and Economic Statistics, International Economic Review, Journal of Economics and Management Strategy, Pakistan Journal of Applied Economics, Journal of Health Economics, American Economic Review, Review of Industrial Organization*

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EXPERIENCE IN CONSULTING AND EXPERT TESTIMONY

Overview of Qualifications

Dr. Hartman is an economist specializing in microeconomics, econometrics and the study of industrial organization. Microeconomics is the science used to analyze and characterize the behavior of groups of consumers and producers that constitute markets. Econometrics is a science that makes use of mathematics and statistics to measure and quantify economic behavior and economic phenomena in markets. The study of industrial organization makes use of both microeconomic theory and econometrics. It focuses upon the structure, conduct and performance of the participants (consumers and producing firms) in markets and industries, for the purposes of predicting behavior and addressing such policy issues as antitrust, regulation and industrial policy.

He has taught economics, conducted economic research and provided economic consulting in his areas of specialization for thirty-five years. He taught economics as an Assistant Professor and Associate Professor within the Department of Economics at Boston University over the period 1977-1988. He taught economics as a Visiting Associate Professor and member of the Visiting Faculty at the School of Law, Boalt Hall, University of California at Berkeley over the period 1988-1993. He was a member of the research faculty at MIT over the period 1977-1982, during which time he conducted research in energy markets for the United States Department of Energy. During the same time, he declined the offer of a Visiting Assistant Professorship within the Department of Applied Economics at MIT, and instead lectured on a selective basis. Since 1971, he has consulted to federal and state governmental bodies, private corporations, law firms, consulting companies, research organizations and international lending organizations. He has been and continues to be a research referee for a variety of academic journals, including the top academic journals in the country. He is the author of more than 100 refereed journal articles, book chapters and research/consulting reports.

He has submitted oral and written testimony before federal and state courts of law and regulatory commissions. His testimony as an expert witness has addressed anticompetitive behavior, merger efficiencies, breach of contract, employment discrimination, patent infringement, class certification and the estimation of damages in a variety of markets and industries including, but not limited to, the pharmaceutical industry, the health care services industry, the electric power industry, the banking industry, the agrochemical industry, the copper industry, the defense industry, the cable TV industry, the tobacco industry, the electrical and mechanical carbon products industry, the medical devices industry and the construction industry. He has consulted to counsel on litigation matters in a broader array of markets.

While his experience has been broadly-based across industries, two industries/markets have been primary subjects of substantial consulting, research and litigation support.

Experience in Energy Markets and Regulated Industries

Since 1977, Dr. Hartman's expertise and experience have involved regulated industries generally and the markets for electric power and natural gas specifically. His consulting and/or litigation assignments have included load forecasting, evaluation of conservation and load management programs, econometric cost analysis, analysis of revenue requirements and rate-making, analysis of value of service reliability, the analysis of mergers and acquisitions, analysis of industry restructuring, analysis of manipulation of spot and future prices in energy markets, and analysis of contract damages arising from DOE's partial breach of the Standard Contract regarding storage of nuclear waste. In these assignments, Dr. Hartman has consulted for

such clients as Arizona Public Service, the Pacific Gas and Electric Company, the Southern California Edison Company, the Southern California Gas Company, the San Diego Gas and Electric Company, Portland General Electric Company, Bonneville Power Administration, General Public Utilities, Northeast Utilities, Niagara Mohawk Power Corporation, the Delmarva Power Corporation, Florida Power Corporation, Sithe Energies, the California Energy Commission and Public Utilities Commission, the Missouri Public Service Commission, the Rhode Island Division of Public Utilities, the Attorney General of the State of Massachusetts, the Electric Power Research Institute, the Gas Research Institute, the U.S. Department of Energy, the U.S. Department of Justice, the World Bank, and the governments of Indonesia and Thailand. He has consulted for a number of other clients whose identity must remain confidential.

Experience in Health Care and Pharmaceutical Markets

Over the past 10 years, Dr. Hartman has participated as testifying or consulting expert in a wide array of matters related to health-care markets generally and, more specifically, markets for medical devices and pharmaceutical products. For examples, working with a team of health care experts, he submitted written testimony assessing and measuring the impacts of smoking on Medicaid health care costs in the Commonwealth of Massachusetts. He submitted testimony analyzing the competitive impacts upon and damages to a class of dental laboratories caused by the restrictive dealer practices of a dominant U.S. manufacturer of medical prostheses - false teeth. He consulted to the group of wholesaler defendants in the Brand-Name Prescription Drugs Antitrust Litigation, addressing issues of wholesaler pricing across classes of trade. He consulted to counsel to a manufacturer of cardiovascular stents and other related devices in a variety of patent infringement matters, addressing such issues as competition, market penetration of new products and economic damages arising from patent infringement. He consulted for one group of private plaintiffs in the antitrust matter regarding the prescription drugs lorazepam & clorazepate and for the Federal Trade Commission in the matter of Hoechst Marion Roussel, Inc., Carderm Capital L.P. and Andrx Corporation concerning antitrust claims involving the prescription drug Cardizem CD. That consultation addressed issues of market definition, product competition, class certification and damage estimation. He consulted to counsel on the matter of damages to the class of direct purchasers of the prescription drug Taxol and on the matter of damages to the class of indirect end-payer purchasers of the prescription drugs K-Dur, Augmentin, Bextra, Celebrex and Vioxx. He submitted testimony addressing class certification, liability and/or damages for the class of end-payer purchasers in antitrust or RICO litigation concerning the prescription drugs Hytrin, BuSpar, Relafen, Lupron, Premarin, Cipro in the states of New York and California and in the United States, and Neurontin in the United States and Pennsylvania. In the MDL AWP litigation, he submitted testimony in support of the certification of the class of end-payer purchasers of those pharmaceutical products produced by AstraZeneca, the Bristol-Myers Squibb Group, the Johnson & Johnson Group, the GlaxoSmithKline Group and the Schering Plough Group that were alleged to have been the subject of a scheme to fraudulently inflate their Average Wholesale Price (AWP); he subsequently submitted testimony supporting findings of causation, liability and the calculation of damages for those end-payer groups for which class certification was granted. He has consulted to and/or submitted testimony for the Offices of the Attorneys General for the states of New York, Connecticut, Montana and Nevada in analogous matters. His testimony has been the basis for the certification of class in a variety of these matters. His testimony has been the basis for approval supporting settlement agreements in a variety of these and other pharmaceutical matters.

Specific Assignments

1972-1975: In consultation with Arthur D. Little, Inc., Dr. Hartman developed economic impact models to assess the effects of environmental regulations upon the U.S. pollution abatement equipment industry and upon a particular U.S. copper smelting company.

1972-1975: In consultation with Arthur D. Little, Inc., Dr. Hartman developed economic models to assess the regional macroeconomic and industrial impacts of alternative strategies to promote tourism-related industries. The models were used in the United States by the states of Maryland and Maine and for the Philadelphia Bicentennial Commission. Internationally, the models were used by the Ministry of Planning of Mexico to assess the national and regional importance of tourism coming into Acapulco.

1976-1977: Consultation with Arthur D. Little, Inc. for the U.S. Environmental Protection Agency. The effort involved the design, estimation and implementation of an econometric simulation model that was used to assess the impact of pollution abatement legislation on the U.S. copper industry. The model was designed to incorporate engineering cost estimates attributable to the abatement legislation while accounting for the noncompetitive pricing behavior in the industry. The model was used to evaluate and revise proposed abatement legislation. This analysis was the basis for Dr. Hartman's Ph.D. dissertation and several of his publications.

1977-1982: Working as the testifying expert, Dr. Hartman analyzed the presence of a price-fixing conspiracy among the major U.S. copper producers during the 1970's. His testimony addressed issues of liability and developed a model of damages. See

> Affidavit to United States District Court for the Southern District of New York, *J.N. Futia Co., Inc., Plaintiff, Against Phelps Dodge Corporation, et al., Defendants,* 78 Civ. 4547 (ADS), 1978.
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> Deposition for United States District Court, Southern District of New York for *Reading Industries, Inc., et al. (Plaintiffs) against Kennecott Copper Corporation, et al. (Defendants),* 17 Civ. 1736 (MEL), 1982.

1979: Working for the California Energy Commission, Dr. Hartman developed and presented a Statement of Opinion and Critical Review of Selected Energy End-Use Models and Proposed Specifications for PG&E End-Use Modeling Efforts before the California Energy Commission Hearings on Utility Construction and Siting, November 26-30, 1979.

1984: Testifying expert for the class of all individuals who employed the services of members of Massachusetts Furniture and Piano Movers Association. The analysis developed an econometric model to assist in certifying the class and measuring the damages common to that class. See

> Affidavit to United States District Court for the District of Massachusetts in the Matter of *Kenett Corporation et al v. Massachusetts Furniture and Piano Movers Association Inc. et al,* May 1984, Civil Action No. 82-140-Z.

1984-1986: In consultation with the U. S. Postal Service, Dr. Hartman identified appropriate econometric methods for analysis of the determinants of Postal Service costs. The particular methods he suggested were "hedonic" cost techniques, which are specifically designed to account for the fact that both increased levels of production and improved product attributes increase costs. The techniques assisted the Postal Service in quantification of the cost impacts of the attributes of service quality for alternative classes of service. For example, the techniques allowed for estimation of the differential cost impacts of alternative service priorities, size and weight attributes of the various classes of mail.

He later applied these techniques for a group of second class mailers. The analysis was introduced before the Postal Service Commission to assess whether proposed postal rate changes reflected actual costs.

1984-1986: The development of econometrically-based strategic planning models, which allow for estimation of the effects on corporate profits of alternative product design and pricing strategies. The models allow for examining specific design strategies by explicitly incorporating detailed product attributes. The models were developed for Westin Hotels and Shell Oil. The Westin models have been implemented into an interactive PC tool that facilitates pricing decisions at the front desk.

1985: For analysis presented before the International Trade Commission, Dr. Hartman helped develop and estimate a model to evaluate the domestic effects of importation of certain synthetic aramid fibers. The analysis was used in adjudicating an international patent infringement complaint.

1985-1986: Dr. Hartman participated in an analysis of one of the nation's largest mutual funds. The study was undertaken as part of a class action alleging inappropriate management fees. The study assessed competition in the money market mutual fund industry. It measured investors' sensitivity to changes in yield and to the level of services provided. It also statistically identified the determinants of the costs of providing mutual fund services.

1985-1986: The development for GTE Laboratories of econometric demand models for analysis and measurement of the determinants of demand for telecommunications services. The models explicitly address the separate customer decisions to subscribe to one of several telecommunications carriers and the demand for telecommunications services, conditional upon the subscription decision. The analysis was employed by GTE to assist their subsidiary, GTE Sprint, in the design of marketable services, where the services were differentiated by tariff, perceived service quality, provider reputation, and specialized customer services. The analysis is summarized in the paper

> "Estimation of Household Preferences for Long Distance Telecommunications Carrier", *Journal of Regulatory Economics*, Volume 6, 1994.

1985-Present: Dr. Hartman has performed a variety of economic damage analyses in cases of personal injury, wrongful injury and wrongful death. He has worked for both plaintiff and defendant. He has been deposed in such matters as recently as 1995.

1986: For a major natural gas pipeline, preparation of an analysis of the effects of natural gas deregulation as proposed in the Federal Energy Regulatory Commission's Notice of Proposed Rulemaking No. 436.

1986-1987: Working for the class of owners of selected General Motors' X Cars and VW Rabbits, Dr. Hartman specified and estimated econometric models that assisted in the certification of class and estimation of class damages. The damages flowed directly from allegedly-concealed design flaws in these automobiles. The methods are described in

> "The Use of Hedonic Analysis for Certification and Damage Calculations in Class Action Complaints," with M. Doane, *The Journal of Law, Economics and Organization*, Fall 1987.

1986-1987: Development of damage models for litigation in high technology industries. The models were developed in several cases. One involved alleged patent infringement by a major Japanese semiconductor firm, and the second involved market foreclosure of a domestic minicomputer emulator. In these efforts, Dr. Hartman developed econometric models to estimate the market potential, absent the violation, for the particular product foreclosed or whose patent was infringed. The methods are described generically in

"Product Emulation Strategies in the Presence of Reputation Effects and Network Externalities: Some Evidence from the Minicomputer Industry," with D. Teece, *Economics of Innovation and New Technology*, Volume 1, 1990.

1987: Analysis of the competitive effects of relaxing the restrictions on the Bell Regional Operating Companies regarding their vertical extension upstream into equipment manufacture and downstream into the provision of selected telecommunication services. The study was introduced before Judge Greene in the triennial review of the divestiture of the Bell operating companies from AT&T.

1987-1988: For a major gas utility, participation in analysis of the economic effects arising if bypass of an existing pipeline were allowed by state and federal regulation. The analysis developed methods for assessing when competitive bypass is socially desirable. The analysis also developed and used an econometric model to simulate the effects of bypass on demand and prices.

1988: Analysis of the competitive effects the acquisition of trade secrets through the predatory hiring of a competitor's essential labor force. See

Analysis submitted in testimony in the case *Universal Analytics Inc. v. MacNeil Schwendler, Corp*.

1988-1989: As part of their proposed acquisition of Public Service of New Hampshire, Dr. Hartman was retained by Northeast Utilities, Inc. to develop and estimate load forecasting models. The models were used to assess the demand implications of alternative rate assumptions proposed as part of the acquisition. The forecasts were introduced as part of Northeast Utilities' filings before the bankruptcy court, the state public utility commissions, the SEC and the FERC.

1989: As part of major antitrust litigation against the leading vendors of airline computer reservation systems, Dr. Hartman helped develop liability analysis and models for the estimation of damages.

1989: As a proposed testifying expert for Parnelli Jones, Inc., Dr. Hartman analyzed the antitrust implications of Firestone's retail trade practices, particularly alleged vertical and horizontal restraints of trade. He designed damage models for the alleged violations.

1989 - Present: Dr. Hartman has performed and continues to perform the market analyses required for Hart-Scott-Rodino applications and second requests supporting mergers and acquisitions in a variety of industries, including specialty chemicals, airlines, health care and medical diagnostic products, and energy products and services.

1989-1990: Dr. Hartman participated as a principal investigator and testifying expert for the Division of RatePayer Advocates of the California Public Utility Commission in an analysis of the economic and legal implications of the proposed merger between Southern California Edison Company and San Diego Gas and Electric Company. Dr. Hartman's responsibilities included overall study design, econometric analysis of scale and scope economies arising with the merger, and analysis of efficiencies purportedly arising with the coordination of the demand-side management programs of the two utilities. His direct and surrebuttal testimony is found in

California Public Utilities Commission, Division of Rate Payer Advocates, Report on the Proposed Merger of the Southern California Edison Company and the San Diego Gas and Electric Company,

Volume V, Chapter II, Application 88-12-035, February, 1990, Exhibit 10,500; and

California Public Utilities Commission, Division of Rate Payer Advocates, Report on the Proposed Merger of the Southern California Edison Company and the San Diego Gas and Electric Company, Surrebuttal: Econometric Analysis of Merger Impacts, Application 88-12-035, July, 1990, Exhibit 10,511.

1989-1990: Working with Arthur D. Little, Inc., Dr. Hartman participated as a principal investigator and testifying expert in a merger study for several small New England utilities within Nepool. Dr. Hartman designed and implemented a statistical study of returns to scale and scope in the industry. Using the statistical results, Dr. Hartman developed opinions regarding the efficiency effects of the proposed merger. His analysis appears as an independent Appendix to

Arthur D. Little, Inc., Evaluation of EUA's Proposed Acquisitions of UNITIL and Fitchburg, Report to Gaston and Snow, March 12, 1990, presented in support of the acquisition to the Securities and Exchange Commission and the New Hampshire Public Utilities Commission.

1990: Working for a group of commodity futures exchanges, Dr. Hartman participated as Principal Investigator in a critical review of a statistical and econometric study performed by the Commodity Futures Trading Commission. The CFTC study was developed to assess the effects of dual trading on commodity futures markets, in order to implement proposed regulations curtailing such trading.

1990: Working with Barakat and Chamberlin, Inc., Dr. Hartman developed a Ramsey pricing model for Arizona Public Service Corporation. The Ramsey pricing model was used to develop and explore alternative rate strategies for a variety of residential, commercial and industrial market segments. The analysis was submitted in formal rate hearings.

1990-1992: Working with the Technology Research Center of Arthur D. Little, Inc. for the United States Postal Service, Dr. Hartman specified and estimated econometric models to analyze the determinants of productivity for the largest 120 post offices in the United States. The econometric models are being used to identify the most and least productive offices, with the purpose of learning from the performance of the most productive offices in order to improve the performance of the least productive offices. The models are being used to design and implement incentive regulation mechanisms to increase productivity across post offices.

A second set of econometric models have been specified and estimated to quantify the effects of the attributes of alternative postal services and rate classes upon total postal service costs. The results of this analysis are being used to design postal rates for alternative classes of service which reflect the real costs of providing the services. The analysis and its results will be introduced into the postal rate hearings.

1990-1997: Working with the World Bank, Dr. Hartman has specified and is estimating a set of econometric models to measure both the level and types of pollutants emitted by United States plants and establishments and the costs of abating those pollutants. The models identify and quantify, at the plant level, the relationship between the emission of approximately 300 pollutants and the scale of production, the types of technology used, the age and characteristics of the plant and equipment used, the extent to which abatement equipment has been installed, and the costs (capital and operating) of abating alternative pollutants.

The models will be used in the following ways in developing countries and Eastern European countries: to assist the countries to predict and assess the environmental implications of reliance upon certain

technologies and industries in development; to assess the effectiveness of alternative regulatory methods for abating pollution, including effluent standards, effluent taxes, effluent licenses, technology standards, effluent banks, and alternative property right schemes; to implement incentive regulation mechanisms to better stimulate abatement compliance; and to identify and prioritize those industries that can abate certain pollutants at least cost.

As part of this effort, Dr. Hartman has also designed a specific incentive regulation system for pollution abatement compliance in Indonesia. The system is based upon the most recent theory in regulated incentive mechanisms. The system will ultimately evolve into an effluent bank or a system of effluent fees. If the effort is successful, it will form the basis for environmental institutions in other developing countries. In the process of designing this system, he has reviewed the institutional and statutory basis for environmental policy in Indonesia.

Also as part of this work, Dr. Hartman is in the process of designing the institutional and statutory structures for Environmental Protection Agencies in a variety of developing countries. The institutional structures will be designed to articulate and implement pollution abatement policies that are informed by the econometric modeling described above.

1991: Dr. Hartman participated as a principal investigator and testifying expert for the Missouri Public Service Commission in a critical analysis of the proposed merger between Kansas Power and Light Company and Kansas Gas and Electric Company. Dr. Hartman's responsibilities included overall study design, analysis of scale and scope economies arising with the merger, analysis of unanticipated transitional cost arising with the merger and an econometric event study of the stock market's response to the merger. His testimony appears in

> A Critical Analysis of the Proposed Merger Between Kansas Power and Light Company and Kansas and Electric Company, Report to the Missouri Public Service Commission, March 25, 1991.

1991: Working for the Resolution Trust Corporation in its litigation against Michael Milken and Drexel Burnham Lambert Inc., Dr. Hartman developed data and econometric models to measure the size of the relevant antitrust markets dominated by Drexel and to estimate the size of the economic damages produced by Drexel's alleged monopolization of those markets.

1991-1992: Working for the Indonesian government and the United States Agency for International Development, Dr. Hartman critically reviewed the structure of the Indonesian electric power industry and the institutions regulating that industry. The purpose of the analysis was to assist the government with privatizing their energy industries. His analysis focused upon the following: developing better data and models for predicting demand and supply; identifying and implementing more efficient industrial structures; and developing better regulatory regimes.

1992: Working for the World Bank, Dr. Hartman designed methods to measure and compare the social value of the environmental effects of alternative development projects, at the microeconomic and macroeconomic levels. His analysis focused upon standard and contingent valuation survey approaches and their use in econometric settings.

1992-1993: Working for the World Bank in Bangkok, Dr. Hartman characterized and critically analyzed the environmental effects of Thailand's energy use patterns. He focused upon the use and production of electric power, petroleum, coal and natural gas. He developed recommendations for environmental policy changes that included, but were not limited to, fuel taxes, effluent standards, technology standards, and

privatization of environmental monitoring within a "bubble" policy approach.

1992-1993: Working for a biomedical company (a producer of vascular grafts) in an antitrust situation, Dr. Hartman designed and implemented survey techniques and econometric models to measure the size of the relevant markets and market power within those markets.

1992-1993: In a proceeding before the International Trade Commission, Dr. Hartman critiqued ITC econometric methods used for estimating elasticities of demand, supply and substitution among domestic and imported products. His focus was selected steel products. He formulated and estimated alternative models and methods to improve the existing estimates. He developed presentation materials for the Commission and testified before the Commission. His testimony is included in

> LECG, Petitioners' Economic Testimony in the Matter of Certain Carbon Steel Flat Products, Final Hearing before the United States International Trade Commission, June 29-30, 1993; and
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> LECG, Petitioners' Post Hearing Brief in the Matter of Certain Carbon Steel Flat Products, before the United States International Trade Commission, July 7, 1993.

1992-1997: Working for the World Bank, Dr. Hartman has designed and is currently implementing a set of regional econometric/engineering models that accurately portray and predict the economic, environmental, infrastructural and socio-demographic effects of large-scale, World-Bank-funded infrastructural projects. The models combine input-output and econometric methods.

Given the Bank experience that many of their financially-sponsored projects create significant unanticipated environmental effects, the models are designed to be broad and comprehensive enough to incorporate and predict all important effects. The models systematically characterize the relationship between resource-based economic growth and the regional environment in which that growth occurs.

The models are currently being implemented for assessing project developments in the Carajas region of the Brazilian Amazonian rain forest, which is a large, dynamic and ecologically sensitive frontier area. The methods implemented for Brazil will be generalized for analysis of economic growth in ecologically similar areas, such as the Lake Baikal region of the former Soviet Union.

1993-1994: Working for the Commonwealth of the Northern Mariana Islands, Dr. Hartman developed and presented testimony rebutting a complaint by the United States Department of Justice that the Public School System of the Commonwealth practiced employment discrimination against teachers of Filipino and native Carolinian origin. Dr. Hartman's testimony examined both hiring and compensation practices. His testimony included hedonic regression analysis of the market for public school teachers in the islands. This analysis measured how teacher attributes and qualifications determined teacher salaries and hiring. The results of the analysis indicated that salary differentials resulted from differences in teacher qualifications rather than discrimination.

1993-Present: Working either as the testifying expert or supporting other testifying experts, Dr. Hartman has participated in a variety of patent infringement cases. He has developed, supported and estimated alternative theories and measures of damages for manufacturers of coaxial cable and a variety of alternative medical devices.

1993-1998: Working as the testifying expert, Dr. Hartman developed models estimating the damages to the business of a construction general contractor that were caused by the malicious prosecution of the contractor's

insurance company.

1994: Working for the United States Wheat Associates in a proceeding before the ITC, Dr. Hartman designed and implemented an econometric study to assess and quantify the extent to which Canadian Wheat Board imports into the U.S. undersold domestic supplies and thereby materially interfered with the United States Department of Agriculture Wheat Program. The econometric study was hedonic. The study measured how non-price attributes are valued in U.S. wheat markets. The non-price attributes analyzed included such things as protein content, shipment defects, moisture content and a number of end-use performance characteristics. Having measured the value of these attributes in U.S. markets, the analysis indicated how the Canadian Wheat Board fixed import prices below market levels, given the attributes of the imported wheat.

1994: Working as a testifying expert for Gallo Wines in a proceeding before the ITC, Dr. Hartman designed and implemented a statistical study of the US wine industry that analyzed the impacts of Chilean wine imports upon the domestic industry that would result from the inclusion of Chile in a Free Trade Agreement with the US.

1994: Working as a testifying expert for an insurer of a member of the Asbestos Claims Facility and Center for Claims Resolution, Dr. Hartman developed a statistical analysis estimating alternative indemnification liabilities expected under the Settlement Share Analysis of the Center for Claims Resolution and under the tort system. The results were used to make strategic decisions regarding the desirability of participating in the Class Action Settlement relative to litigating the claims.

1994: Working for several regional Bell Operating companies, Dr. Hartman has developed models and survey procedures to analyze and quantify the determinants of demand for local services, long-distance services and PCS services. The models quantify how consumers respond to and select among alternative carriers who differentiate their services by performance attributes and vendor reputation. The models also estimate the level of service demand, conditional upon the selection of service vendor. The models are being used to quantify the nature of competition among local carriers and long-distance carriers in the Intralata market. The models are also being used to help develop bidding strategies for specific RBOCs as they participate in the FCC auctions for the PCS spectra.

1995: Working as a testifying expert for a group of independent television stations and program producers, Dr. Hartman developed an econometric analysis of the impacts of the Prime Time Access Rule (PTAR) upon the economic performance of independent television stations. The analysis was submitted to the Federal Communications Commissions as part of their consideration of the repeal of the Rule. Dr. Hartman's analysis proved that PTAR had a strong, statistically significant effect upon the economic performance of these stations, and that its repeal would adversely impact them.

His testimony is included in

The Economic Effects of Repealing the Prime Time Access Rule: Impact on Broadcasting Markets and the Syndicated Program Market, Report prepared by LECG and presented before the Federal Communications Commission, MM Docket No. 94-123, March 7, 1995.

1995: Working for a big six accounting firm, Dr. Hartman designed and implemented a hedonic regression analysis to calculate transfer prices under the comparable uncontrolled price (CUP) method. The analysis is discussed in

"The Use of Regression Techniques in Transfer Price Analysis," with Delores Wright and J.D.

Opdyke, *European Taxation,* 1996.

1995-1996: Working as the testifying expert for a major high tech firm in New England, Dr. Hartman has developed rebuttal and affirmative testimony to rebut claims of age discrimination in the termination of a group of employees over forty. His rebuttal testimony involved critically reviewing statistical analyses purporting to demonstrate disparate treatment and disparate impact. His affirmative testimony has involved designing and implementing econometric models to identify and estimate those factors actually determining the compensation and termination decisions of the defendant.

1995-1996: Working as the testifying expert for the Office of Attorney General of the State of Massachusetts, Dr. Hartman has analyzed and helped develop the State's positions on the following issues: restructuring the electric utility industry in Massachusetts and New England; regulating those entities in the restructured industry that will remain subject to regulation; and valuing those assets that may be stranded as a result of restructuring. As part of the effort, Dr. Hartman also critically reviewed the restructuring proposals of the largest utilities in the state. His testimony appears in

> "The Market for Power in New England: The Competitive Implications of Restructuring," a report prepared for the Office of the Attorney General, Commonwealth of Massachusetts and submitted February 16, 1996 in support of their filing to the Department of Public Utilities as part of DPU 95-30, which was initiated August 15, 1995.

1995-1996: Working as the testifying expert, Dr. Hartman represented Florida Power Corporation in a contract dispute with Independent Power Producers. His analysis and testimony focused upon issues of damages incurred as a result of a breach of contract.

1995-1999: Working with a team of economists, Dr. Hartman represented the group of wholesalers in the retail prescription drug price fixing conspiracy case. His efforts included industry analysis and participation in cross examination of plaintiffs' experts.

1996: Working as the testifying expert for the Division of Public Utilities of the State of Rhode Island, Dr. Hartman has analyzed and helped develop the State's positions on restructuring the electric utility industry in Rhode Island and New England, for both the State's Public Utilities Commission and the FERC. As part of the effort, Dr. Hartman also critically reviewed the restructuring proposals of some of the utilities in the state. His testimony appears in

> "The Division Plan to Restructure the Electric Utility Industry in Rhode Island," Volume 2 of Supporting Testimony to the State of Rhode Island and Providence Plantations Public Utilities Commission, in re: Electric Industry Restructuring, Docket 2320, April 12, 1996.

1996: Working with a team of engineering firms, an international investment banking firm, a big six accounting firm and several national law firms, Dr. Hartman developed models of demand, supply and futures markets in restructured electric power markets to assist a major industry participant in evaluating specific alternative acquisition strategies.

1996: Working with a team of economists developing evidence for presentation before the High Court of New Zealand, Dr. Hartman critically reviewed and rebutted a variety of econometric analyses of natural gas markets and more broadly-defined energy markets in New Zealand. These analyses were used to determine the size of antitrust markets for a variety of energy products.

1996: Dr. Hartman was retained by a major mid-west utility to critically review and rebut analyses and evidence presented before the FERC and the relevant State Commissions concerning the competitive impacts of the proposed Primergy merger.

1996-2003: Working as the testifying expert, Dr. Hartman analyzed the employment practices and procedures of the Florida Power Corporation during a reduction in force, to assess the validity of a complaint that those practices and procedures resulted in a pattern of age discrimination. In his testimony, Dr. Hartman implemented a variety of statistical and econometric analyses to address and quantify claims of disparate impact and disparate treatment.

1996-1997: Working for US Airways with a team of economists, Dr. Hartman specified and estimated a variety of econometric consumer choice models to measure customer preferences for the services of alternative air carriers in a cross section of US-European origin-destination markets. The models were used to evaluate the economic impacts of both the proposed alliance between American Airlines and British Airways and alternative proposals to condition that alliance.

1996-1997: Working as the testifying expert, Dr. Hartman represented a major national retail pharmaceuticals wholesaler in litigation brought by a regional distributor alleging monopolization of wholesale services to distinct classes of trade. His analysis addressed market definition, the analysis of competition generally and analysis of the competitive impact of specific contractual arrangements.

1997: Working with a team of experts, Dr. Hartman analyzed economic impacts of the construction of the Warrior Run Cogeneration plant which was under construction in Western Maryland and was contracted to sell power to Allegheny Power System's (APS) Maryland subsidiary, Potomac Edison.

1997: Working as the testifying expert for the Office of Ratepayer Advocates of the California Public Utilities Commission, Dr. Hartman critically reviewed the efficiencies estimated by Applicants to be induced by the proposed merger of Pacific Enterprises and Enova Corporation.

1997: Working with a team of economists, Dr. Hartman prepared affirmative and rebuttal testimony in a breach of contract matter in the pharmaceutical industry arbitrated before the International Chamber of Commerce.

1997-2000: Working as the testifying expert, Dr. Hartman developed analysis supporting certification of class and estimation of damages for the class of purchasers of thermal fax paper in the US over the period 1990-1992 who were damaged as a result of a price fixing conspiracy by major suppliers.

1998: Working as the testifying expert, Dr. Hartman analyzed the employment practices, procedures and personnel data of the Florida Power Corporation, in general and in particular, to assess the validity of a complaint that a specific employee had been subjected to racial discrimination.

1998-1999: Working with a team of economists for the Office of the Attorney General of the State of Massachusetts, Dr. Hartman developed and implemented econometric models to analyze and measure the health care costs arising under the Medicaid program that have been attributable to smoking. The analysis appears in the following documents:

> David M. Cutler, Arnold M. Epstein, Richard G. Frank, Raymond S. Hartman, Charles King and Joseph P, Newhouse, *The Impact of Smoking on Medicaid Spending in Massachusetts: 1970-1998 -- Report on Methods*, June 15, 1998;

David M. Cutler, *et. al., The Impact of Smoking on Medicaid Spending in Massachusetts: 1970-1998 -- Results From The Inclusive Approach for Adults*, July 1, 1998;

David M. Cutler, *et. al., The Impact of Smoking on Medicaid Spending in Massachusetts: 1991-1998 -- Results From The Disease-Specific Approach for Adults and Overall Summary*, July 11, 1998.

Drawing upon these efforts, Dr. Hartman worked with the same team of experts to analyze the economic impacts of the Master Settlement Agreement and to present their findings to the Tobacco Fee Arbitration Panel.

1999: Working as one of two testifying experts for the Office of the Attorney General of the Commonwealth of Massachusetts, Dr. Hartman critically analyzed potential rate increases relevant to Joint Petitions introduced by both Eastern Enterprises/Colonial Gas Company and Boston Edison/Commonwealth Energy Systems. His testimony appears as

Joint Testimony of Seabron Adamson and Raymond Hartman on Behalf of the Massachusetts Attorney General, in the matter of the Joint Petition of Eastern Enterprises and Colonial Gas Company For Approvals of Merger Pursuant to G.L. c. 164, §§ 96 and 94, DTE 98-128, March 26, 1999.

Joint Testimony of Seabron Adamson and Raymond Hartman on Behalf of the Massachusetts Attorney General, in the matter of the Joint Petition of Boston Edison Company, Cambridge Electric Light Company, Commonwealth Electric Company and Commonwealth Gas Company For Approval of Rate Plan Pursuant to G.L. c. 164, §§ 76 and 94, DTE 99-19, April 30, 1999.

1999-2000: Dr. Hartman was retained by a group of industrial purchasers of copper to develop and implement methods and models to assess liability and measure damages in the matter involving the manipulation of the spot and future prices of copper on the London Metals Exchange by Sumitomo Corporation and Yasuo Hamanaka over the period 1987-1996.

1999-Present: Dr. Hartman consulted with counsel and the testifying expert in the development of data and models needed to certify class and measure damages in a price fixing case involving the manufacturer (Mylan) of generic clorazepate and lorazepam.

1999-2001: Working as the testifying expert, Dr. Hartman analyzed liability arising from a variety of restrictive dealer arrangements implemented by Dentsply International Inc., a U.S. manufacturer of artificial teeth, to foreclose entry by rival manufacturers from the US dental-laboratory dealer network. Dr. Hartman developed and implemented methods to measure damages to the class of dental laboratories that purchased artificial teeth from Dentsply at prices above the competitive prices that would have obtained absent the restrictive dealer arrangements.

1999-2000: Working with a team of economists for the Federal Trade Commission, Dr. Hartman analyzed the pro-competitive and anti-competitive nature of settlement agreements between generic and pioneer drug manufacturers resolving patent infringement litigation arising from certification under Paragraph IV of the Hatch Waxman Act (Drug Price Competition and Patent Term Restoration Act). Particular settlements analyzed include the settlement between Abbott Laboratories and Geneva Pharmaceuticals regarding the drug Hytrin and the settlement between Hoechst Marion Roussel (Aventis) and Andrx Corporation regarding the drug Cardizem.

1999-2000: Working as the testifying expert for the class of purchasers of Nine West shoes, Dr. Hartman was asked to analyze liability and measure damages arising from an alleged conspiracy to raise and maintain

the prices of women's shoes manufactured by the Nine West Group Inc. and sold by a variety of general merchandise retailers through their upscale retail department stores. The defendants in the case included Nine West Group Inc., Federated Department Stores, Inc., Dayton Hudson Corporation, Lord and Taylor, Nordstrom, Inc., May Department Stores, Macy's, Bloomingdale's, Inc., and other general merchandise retailers.

2000: Working with the testifying expert, Dr. Hartman assisted in the analysis and estimation of economic damages to a Class defined as all smokers with 20-pack years each of whom contracted lung cancer which was substantially contributed to by cigarette smoking.

2000: Working with a team of economists, Dr. Hartman developed econometric models to analyze and measure the impacts of subject imports, non-subject imports and factor price changes upon the prices of structural steel beams during the period 1998-1999. The work was presented before the International Trade Commission.

2001: Working with a team of economists, Dr. Hartman developed econometric models to analyze and measure the impacts of subject imports, non-subject imports and factor price changes upon the prices of structural steel beams and during 2000. He also developed econometric models to analyze and measure the impacts of subject imports, non-subject imports and factor price changes upon the prices of cold rolled and hot rolled steel during the Period of Inquiry of 1997-1999. Both efforts were presented before the International Trade Commission.

2001-present : Working as the testifying expert, Dr. Hartman developed and submitted testimony in support of class certification of and the calculation of damages to the class of indirect purchasers of the anti-hypertensive drug, Hytrin, produced by Abbott Laboratories and the generic equivalent of Hytrin, generic terazosin hydrochloride, produced by Geneva Pharmaceuticals. The class alleges monopolization and violation of the Hatch Waxman Act (Drug Price Competition and Patent Term Restoration Act).

2001-Present: Working as consultant and testifying expert, Dr. Hartman has been retained by counsel to the classes of indirect or direct purchasers of a variety of branded pharmaceuticals (including but not limited to Augmentin, Bextra, Cipro (New York, California, U.S.), BuSpar, Celebrex, Vioxx, K-Dur, Taxol, Lupron, Relafen, Paxil, Neurontin, Remeron, Tamoxifen, Premarin, Wellbutrin and Zyprexa) to analyze and submit testimony dealing with class certification, liability, market definition, damage calculations and settlement allocations arising from violations of the Hatch Waxman Act (Drug Price Competition and Patent Term Restoration Act), related state-specific unfair competition statutes and the RICO Act.

Dr. Hartman's testimony in this area has been relied upon (and cited thereto) for certification of end-payer consumer classes in the following matters:

- *In re: Terazosin Hydrochloride Antitrust Litigation*, United States District Court, Southern District of Florida, Case No. 99-MDL-1317-Seitz/Klein [Order Granting Indirect Purchaser Plaintiffs' Motions for Class Certification of State-Wide Classes, April 8, 2004]
- *In re Cipro Cases I and II*, D043543 (JCCP Nos. 4154, 4220), Court of Appeal, Fourth Appellate District, Division One, State of California [Decision affirming class certification not titled but marked as "Not to Be Published in Official Reports," Filed 7/21/04]
- *In re: Relafen Antitrust Litigation*, United States District Court, District of

Massachusetts, Master File No. 01-12239-WGY [Memorandum granting certification for an exemplar class, May 12, 2004]

Dr. Hartman's testimony has been relied upon (and cited as necessary) for approval of proposed settlement allocations in the following matters:

- *In re: Lupron® Marketing and Sales Practices Litigation*, United States District Court, District of Massachusetts, MDL No. 1430, Master File No. 01-CV-10861-RGS [Memorandum and Order Approving Settlement and Certifying the Class, May 12, 2005]
- *HIP Health Plan of Florida, Inc., On Behalf of Itself and All Others Similarly Situated v. Bristol-Myers Squibb Co. and American Bioscience*, Case Number 1:01CV01295, United States District Court for the District of Columbia
- *In re Buspirone Antitrust Litigation*, MDL No. 1413, United States District Court for the Southern District of New York
- *In re Relafen Antitrust Litigation*, United States District Court, District of Massachusetts, Master File No. 01-CV-12222-WGY
- *In re Remeron Antitrust Litigation*, United States District Court, District of New Jersey, Master Docket No. 02-CV-2007

2001: Working as consultant to counsel for various U.S. steel producers, Dr. Hartman worked with a team of economists to develop econometric models to analyze and measure the impacts of imports, demand and factor price changes upon the prices of domestically produced carbon steel flat products and carbon steel long products in the Section 201 hearings before the International Trade Commission. Dr. Hartman testified before the ITC in the hearings. The Commission decided in favor of most of the products subject to these analyses.

2001: Working as consultant to counsel for Nucor Steel Corporation, Dr. Hartman worked with a team of economists to develop econometric models to analyze and measure the impacts of imports, demand and factor price changes upon the prices of domestically produced carbon steel cold rolled products for preliminary hearings before the International Trade Commission.

2001-2002: Consulting to counsel for the Plaintiff Class, Dr. Hartman analyzed the targeting of youth by cigarette advertisements in the matter *in re Devin Daniels, et. al., v. Philip Morris Companies, Inc., et. al.*, Case Number 719446, coordinated with JCCP 4042.

2001-2003: Working as testifying expert, Dr. Hartman developed and presented statistical evidence analyzing the relative performance of a particular cardiovascular surgeon litigating the fact that his surgical privileges had been revoked as a result of incompetent surgical performance and results. He testified before an arbitration panel in the matter.

2003: Working as the testifying expert for Defendants, Dr. Hartman submitted testimony analyzing the allegation of racial discrimination on the part of Wells Fargo Home Mortgage, Inc. and Norwest Mortgage, Inc.

2003: Working as a consulting expert to counsel for the class of purchasers of graphite electrodes, Dr. Hartman developed econometric models to assess the impact of alleged antitrust violations.

2003: Working as a consulting expert for counsel to the class of direct purchasers, Dr. Hartman reviewed materials in a matter regarding antitrust allegations concerning the manufacture and sale of microcrystalline cellulose in the United States.

2003: Working as a consulting expert to counsel for a large electrical generation company, Dr. Hartman developed economic and econometric models to analyze the allegation that this electrical generation company participated in a conspiracy to manipulate prices of power sold in California.

2003: Working as the testifying expert, Dr. Hartman submitted testimony which analyzed and calculated the economic impacts and damages to the U.S. growers and quota holders of flue-cured and burley tobacco leaf caused by a price-fixing conspiracy among the major U.S. tobacco leaf buyers and cigarette manufacturers.

2004: Working as the consulting expert for the United States Department of Justice, Dr. Hartman critically analyzed the calculation of the economic damages borne by an electric power generation utility as a result of the breach of the Standard Contract with the U.S. Department of Energy to remove spent nuclear fuel in 1998. Dr. Hartman's analysis included a critical review and rebuttal of the models and data put forward by the utility's experts in the calculation of damages; the development and presentation of alternative and improved models and corrected data to more accurately calculate damages; a critical review of econometric analyses put forward by one of the utility's experts; and a review of the economics of re-licensing existing nuclear generating facilities.

2004: Working as the testifying expert, Dr. Hartman submitted testimony in support of the certification of the class of purchasers of electrical carbon products who have been alleged to have been impacted and injured economically as a result of a price-fixing customer-allocation conspiracy of the major suppliers of such products in the United States.

2004-Present: Working as the testifying expert, Dr. Hartman submitted testimony in support of the certification of the class of end payer purchasers of those pharmaceutical products produced by AstraZeneca, the Bristol Myers Squibb Group, the Johnson and Johnson Group, the Glaxo-Smith-Kline Group and the Schering Plough Group that were subject to an alleged scheme to fraudulently inflate their Average Wholesale Price (AWP), thereby fraudulently inflating the reimbursement rates paid by the Class members for those pharmaceuticals when their reimbursement rates were formulaically related to the AWP. Dr. Hartman is consulting on related litigation undertaken by the Offices of the Attorneys General for the States of New York, Connecticut, Arizona, Nevada, Montana and Pennsylvania. He has also submitted testimony establishing liability and calculating damages for those Classes certified by the MDL Court and those States seeking remedy. 2004-2005: Working as a consulting expert to counsel for a major electricity and gas utility holding company, Dr. Hartman developed models to evaluate allegations of affiliate abuse by the regulated gas distribution entities and the trading entities of the holding company. The alleged abuses concerned spot and forward gas markets in California.

2005: Working as the testifying expert for the United States Department of Justice, Dr. Hartman developed models to critically analyze the cost submissions to the U.S. Court of Federal Claims by the TVA for monetary damages alleged to have resulted from partial breach by the U.S. Department of Energy of the Standard Contract to remove spent nuclear fuel from TVA beginning in 2002. Dr. Hartman's analysis included a critical review and rebuttal of the models, data and cost analyses put forward by the utility and the development and implementation of alternative and improved models and corrected data to more accurately calculate costs attributable to the alleged partial breach.

2005-2007: Working again as the testifying expert for the United States Department of Justice, Dr. Hartman developed models to critically analyze the cost submissions to the U.S. Court of Federal Claims by the Systems Fuel Inc., a subsidiary of Entergy, for monetary damages alleged to have resulted from partial breach by the U.S. Department of Energy of the Standard Contract to remove spent nuclear fuel from SFI facilities in Mississippi and Arkansas. Dr. Hartman's analysis has included a critical review and rebuttal of the SFI models, data and cost analyses put forward by the utilities and the development and implementation of alternative and improved models and corrected data to more accurately calculate costs attributable to the alleged partial breach.

SELECTED TESTIMONY OF RAYMOND HARTMAN AT DEPOSITION, HEARING OR TRIAL

1995

The Economic Effects of Repealing the Prime Time Access Rule: Impact on Broadcasting Markets and the Syndicated Program Market, report presented in informal hearings before the Federal Communications Commission, MM Docket No. 94-123, March 7, 1995

Gillam v. Abex, et. al., San Francisco Superior Court No. 966241, 1995 (deposition)

Trilogy Communications Inc. v. Times Fiber Communications & LPL Technologies Inc., United States District Court for the Southern District of Mississippi, Jackson Division, Civil Action No. J91-0542 (W)(S), 1995 (deposition)

1996

Hall v. Abex, et. al., San Francisco Superior Court No. 958853, 1996 (deposition)

Sowers v. Abex, et. al., San Francisco Superior Court No. 949184, 1996 (deposition)

1997

Hillenbrand v. INA/Aetna, Sacramento County Superior Court No. 519223, 1997 (deposition)

1998

Hillenbrand v. INA/Aetna, Sacramento County Superior Court No. 519223, 1998 (trial)

Trilogy Communications Inc. v. Pennie & Edmonds, LLP, et. al., United States District Court for the Southern District of Mississippi, Jackson Division, Civil Action No. CIV-3:97CV722BN (deposition)

Paper Systems Incorporated v. Mitsubishi Corporation; Mitsubishi International Corporation; Mitsubishi Paper Mills Ltd.; Elof Hansson Paper & Board, Inc.; Kanzaki Specialty Papers, Inc.; Oji Paper Co., Ltd.; and Nippon Paper Industries Co., Ltd. (Civil Action No. 96-C-959), consolidated with *Graphic Controls Corp. v. Mitsubishi Corporation; Mitsubishi International Corporation; Mitsubishi Paper Mills Ltd.; Appleton Papers, Inc.; Elof Hansson Paper & Board, Inc.; Kanzaki Specialty Papers, Inc.; Oji Paper Co., Ltd.; and Nippon Paper Industries Co., Ltd.* (Civil Action No. 97-C-412) and *Victor Paper Roll Products, Inc. v. Mitsubishi Corporation; Mitsubishi International Corporation; Mitsubishi Paper Mills Ltd.; Appleton Papers, Inc.; Elof Hansson Paper & Board, Inc.; Kanzaki Specialty Papers, Inc.; Oji Paper Co., Ltd.; and Nippon Paper Industries Co., Ltd*. (Civil Action No. 97-C-508), United States District Court for the Eastern District of Wisconsin (deposition)

1999

Joint Testimony of Seabron Adamson and Raymond Hartman on Behalf of The Massachusetts Attorney General in. re The Joint Petition of Eastern Enterprises and Colonial Gas Company for Approvals of Merger Pursuant to G.L.c. 164 " 96 and 94, before the Department of Telecommunications and Energy, D.T.E. 98-

128 (hearing)

Joint Testimony of Seabron Adamson and Raymond Hartman on Behalf of The Massachusetts Attorney General in re The Joint Petition of Boston Edison Company, Cambridge Electric Light Company, Commonwealth Electric Company, and Commonwealth Gas Company for Approval of Rate Plan Pursuant to G.L.c. 164 " 76 and 94, before the Department of Telecommunications and Energy, D.T.E. 99-19 (hearing)

2001

Oral testimony before the International Trade Commission regarding the impacts of imports, domestic demand and factor price changes upon the prices of domestically produced carbon steel flat products and carbon steel long products during the Section 201 Hearings (No. TA-201-073 (final))

2002

In re Terazosin Hydrochloride Antitrust Litigation, Case No. 99-MDL-1317 Seitz/Garber, consolidated, United States District Court for the Southern District of Florida, (deposition on affirmative and rebuttal testimony in support of class certification and deposition on affirmative testimony on damage analysis)

In re Buspirone Antitrust Litigation, United States District Court, Southern District of New York, MDL Docket No. 1410 (deposition on affirmative and rebuttal testimony on class certification)

Anne Cunningham and Norman Mermelstein, Individually and on Behalf of all Others Similarly Situated, v. Bayer AG, Bayer Corporation, Barr Laboratories, Inc, The Rugby Group, Inc., Watson Pharmaceuticals, Inc. and Hoechst Marion Roussel, Inc., Index No. 603820-00, Supreme Court of the State of New York, County of New York (deposition on affirmative testimony on class certification)

In re Ciprofloxacin Hydrochloride Antitrust Litigation, Master File No. 1:00-MD-1383, United States District Court for the Eastern District of New York. (deposition on affirmative testimony on class certification)

2003

In re Terazosin Hydrochloride Antitrust Litigation, Case No. 99-MDL-1317 Seitz/Garber, consolidated, United States District Court for the Southern District of Florida, (deposition on rebuttal testimony on damage analysis)

Anne Cunningham and Norman Mermelstein, Individually and on Behalf of all Others Similarly Situated, v. Bayer AG, Bayer Corporation, Barr Laboratories, Inc, The Rugby Group, Inc., Watson Pharmaceuticals, Inc. and Hoechst Marion Roussel, Inc., Index No. 603820-00, Supreme Court of the State of New York, County of New York (deposition on rebuttal testimony in support of class certification)

In re Ciprofloxacin Hydrochloride Antitrust Litigation, Master File No. 1:00-MD-1383, United States District Court for the Eastern District of New York. (deposition on rebuttal testimony in support of class certification)

Cipro Cases I and II, Judicial Council Coordination Proceeding Nos. 4154 and 4220 (Superior Court, San Diego County) (depositions on affirmative and rebuttal testimony in support of class certification)

In re Relafen Antitrust Litigation, United States District Court, District of Massachusetts, Master File No. 01-CV-12222-WGY (depositions on affirmative and rebuttal testimony on class certification and affirmative testimony on damages)

Dr. Gregory Derderian, et. al., Plaintiffs, v Genesys Health Care Systems, et. al., Defendants, Case No. 99-64922-CK, State of Michigan, Circuit Court for the County of Genesee (testimony before arbitration panel)

In re D. Lamar DeLoach, et. al., Plaintiffs, v. Philip Morris Companies, Inc., et. al., Defendants, in the United States District Court for the Middle District of North Carolina, Greensboro Division, Case No. 00-CV-1235 (depositions on affirmative and rebuttal testimony calculating damages)

2004

In re Ciprofloxacin Hydrochloride Antitrust Litigation, Master File No. 1:00-MD-1383, United States District Court for the Eastern District of New York (depositions on affirmative and rebuttal testimony calculating damages and affirmative and rebuttal testimony analyzing liability and market definition)

In re Lupron Marketing and Sales Practices Litigation, MDL No. 1430, CA No. 01-CV-10861, United States District Court, District of Massachusetts (deposition on affirmative testimony in support of class certification)

In re Pharmaceutical Industry Average Wholesale Price Litigation, United States District Court for the District of Massachusetts, MDL, No. 1456, CIVIL ACTION: 01-CV-12257-PBS (deposition on affirmative testimony in support of class certification)

2005

In re Lupron Marketing and Sales Practices Litigation, MDL No. 1430, CA No. 01-CV-10861, United States District Court, District of Massachusetts, (submission of written testimony at trial)

In re Tennessee Valley Authority, Plaintiff v. United States, Defendant, United States Court of Federal Claims, No. 01-249-C, (deposition and appearance trial)

Lynne A. Carnegie v. Household International, Inc., Household Bank, f.s.b., successor in interest to Beneficial National Bank, Household Tax Masters Inc., formerly known as Beneficial Tax Masters, Inc., Beneficial Franchise Company, Inc., H&R Block, Inc., H&R Block Services, Inc., H&R Block Tax Services, Inc., H&R Block Eastern Tax Services, Inc., Block Financial Corp. and HRB Royalty, Inc., No. 98 C 2178, United States District Court for the Northern District of Illinois Eastern Division, (submission of written testimony and deposition in calculation of damages)

2006

In re Pharmaceutical Industry Average Wholesale Price Litigation, United States District Court for the District of Massachusetts, MDL, No. 1456, CIVIL ACTION: 01-CV-12257-PBS (deposition testimony in calculation of damages in the MDL matter; submission of written testimony and deposition testimony in the calculation of damages and penalties for the State of Montana and the State of Nevada; submission of written testimony on summary judgment; submission of written testimony in support of class certification

in re Track 2 defendants; appearance at Track 1 trial)

State of Connecticut v. Dey, Inc., Roxanne Laboratories, Inc., Warrick Pharmaceuticals Corp., Schering-Plough Corp. and Schering Corporation; S*tate of Connecticut v. Pharmacia Corp.*, and *State of Connecticut v. Glaxo Smithkline et al*., Superior Court, Complex Litigation Docket at Tolland, Docket Nos. X07 CV-03-0083297-S, X07 CV-03-0083298-S, X07 CV-03-0083299-S (deposition on affirmative testimony on liability and the calculation of damages).

System Fuels, Inc., on its own behalf and as agent for System Energy Resources, Inc. and South Mississippi Electric Power Association, Plaintiff, v. The United States, Defendant, in the United States Court of Federal Claims, No. 03-2624C (deposition)

New England Carpenters Health Benefits Fund; Pirelli Armstrong Retiree Medical Benefits Trust; Teamsters Health & Welfare Fund of Philadelphia and Vicinity; and Philadelphia Federation of Teachers Health and Welfare Fund v. First Databank, Inc., and McKesson Corporation, United States District Court District of Massachusetts, C.A. No. 1:05-CV-11148-PBS (deposition)

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In re Prempro Products Liability Litigation, in the United States District Court for the Eastern District of Arkansas, Western Division, MDL Docket # 4:03CV1507WRW; *In re Hormone Therapy Litigation*, in the Court of Common Pleas Philadelphia County, November 2003, #00001 (deposition)

In re: Neurontin Marketing and Sales Practices Litigation, MDL Docket No. 1629, Master File No. 04-10981, United States District Court, District of Massachusetts (deposition).

System Fuels, Inc., on its own behalf and as agent for Entergy Arkansas Inc., Plaintiff, v. The United States, Defendant, in the United States Court of Federal Claims, No. 2623C (deposition).

2007

System Fuels, Inc., on its own behalf and as agent for System Energy Resources, Inc. and South Mississippi Electric Power Association, Plaintiff, v. The United States, Defendant, in the United States Court of Federal Claims, No. 03-2624C (trial).

Attachment B

Attachment B: Documents Cited

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Berndt, Ernst, Report of Independent Expert Professor Ernst R. Berndt to Judge Patti B. Saris, *In Re Pharmaceutical Industry Average Wholesale Price Litigation*, MDL No. 1456, Civil Action No. 01-12257-PBS, February 9, 2005.

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Hartman, Raymond S., Declaration of Raymond S. Hartman in Support of Plaintiffs' Motion for Class Certification, *New England Carpenters Health Benefits Fund, et al. v. First Databank, Inc., and McKesson Corporation*, United States District Court District of Massachusetts, C.A. No. 1:05-CV-11148-PBS, July 14, 2006; updated December 20, 2006.

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Saris, Patti B., Memorandum and Order re: Motion for Class Certification, *In re: Pharmaceutical Industry Average Wholesale Price Litigation*, United States District Court District of Massachusetts, MDL No. 1456, Civil Action No. 01-12257-PBS, August 16, 2005.

Willig, Robert D., Expert Report of Robert D. Willig, *New England Carpenters Health Benefits Fund, et al. v. First Databank, Inc., and McKesson Corporation*, United States

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Young, Steven, Rebuttal Declaration of Steven Young, *In re Pharmaceutical Industry Average Wholesale Price Litigation*, MDL No. 1456, Civil Action No. 01-12257-PBS, October 25, 2004.

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Attachment C

Attachment C: Detailed Analysis of Dr. Willig's Expert Report

A. DR. WILLIG'S ANALYSIS FAILS FOR MULTIPLE REASONS – OVERVIEW

Dr. Willig's analysis of the role of cost is incorrect.

1. The costs that are the basis for the competitive market results to which he appeals are marginal or variable costs of production. Competition pushes prices to those costs. In the case of pharmaceuticals, variable costs are essentially zero. The cost of producing an extended unit, once the R&D has been sunk, is essentially zero. Therefore, there are no real costs that act as a fundamental determinant of "equilibrium" transactions prices or reimbursement rates. The market relies upon the list prices that he characterizes as "artificial" and inappropriate for inclusion.

Dr. Willig's analysis of the role of demand is incorrect.

2. Most empirical analysis demonstrates that demand for branded innovator drugs, the drugs at issue here, is price inelastic.[1] As a result, demand responses cannot be relied upon to discipline price increases in this market, regardless of whether those price increases are caused by an antitrust violation, a fraudulent pricing scheme or an increase in real costs.

Dr. Willig's analysis of the role and nature of competition is incorrect.

3. Competition in the markets relevant here is not workable in the same way that it is in other markets, where consumers and producers make decisions for themselves, without "mediation" by third parties. When such mediation occurs, an "agency" problem or a "principal-agent" problem can arise. In such situations, an economic entity (a principal) hires another economic entity to act as its representative (its agent). Here the TPPs (principals) hire PBMs (agents) to perform a variety of drug-benefit-plan management activities.[2] The principal (the TPP) pays an administrative fee, as incentive, to its agent (the PBM) to perform these activities. However, if the PBM earns, as incentive, *more income from other sources, such as* drug manufacturer rebates and/or payments from retail chains seeking to participate in the PBM network,[3] it is likely that the PBM will be

[1] See for example, S.F. Ellison, I. Cockburn, Z. Griliches, and J. Hausman, "Characteristics of Demand for Pharmaceutical Products: An Examination of Four Cephalosporins," *Rand Journal of Economics*, 28(3), 1997.

[2] These are described in some detail in Attachment C of my September 3, 2004 Declaration in Support of Class Certification in the MDL-AWP matter.

[3] For example, according to Schondelmeyer and Wrobel, "Examination of the sources of revenue for PBMs reveals that PBMs make more money from manufacturer revenue than they make from employer/client fees. Other major sources of revenue include revenue from pharmacy discounts not passed on to the end payer. Some analysts have raised concerns about the potential conflict of interest faced by PBMs with more revenue from drug manufacturers [and pharmacies] than from the employer or client.

less concerned with its duties to its principal (the TPP) than it will be concerned with satisfying the strategic needs of those other entities. In this case, a "principal-agent" problem arises; the PBM will not properly act to solely reflect, protect *and compete for* the economic interests of the principals (i.e., the Class members) retaining it to perform contracted activities. As a result, competitive motives and behaviors are blunted.

Dr. Willig's analysis of the role and diffusion of information is incorrect.

4. Information plays a different role in pharmaceutical markets than other competitive markets. In competitive consumer product or consumer durable markets, price information is aggressively and accurately disseminated through mailings, flyers and a variety of media sources explicitly informing consumers of price reductions aimed at capturing market share. That is the nature of price competition. In such markets, buyers shop on the basis of price. For some durable consumer products, resale markets exist. Dr. Willig uses (his ¶ 37) the housing market to demonstrate how competitive markets work and price competition occurs. Since sellers compete on the basis of price (and other factors), they must communicate price to consumers, and in that case the buyers do not need to know the seller's acquisition costs, only the price at which the seller offers the product. This is competitive market reasoning, and is correct in that context. Competition among sellers should drive prices down to long-run average costs.

5. This reasoning is not correct in bargaining models, which better describe the relationships between TPPs and PBMs. The shopping that occurs among PBMs by TPPs involves RFPs (Request for Proposal) and negotiations subsequent to receipt of proposals. There is no resale market to provide transaction price information to inform the negotiations concerning the terms of drug reimbursement, since the resale of drugs is illegal.[4]

6. It is well known that, in a bargaining context, the information available to both parties affects the outcome of the bargaining, including its efficiency properties.[5] When TPPs and PBMs negotiate, information concerning the actual spreads between AWPs and the acquisition costs (WAC) to retail pharmacies, in addition to information about recent changes in the determinants of AWP will determine the negotiating positions taken by both parties regarding reimbursement. If available to them, such information can enable TPPs to push PBMs more aggressively during negotiations, with respect to discount rates, dispensing fees, rebate-sharing percentages, administrative fees, and other forms of compensation. Lack of such information on the part of TPPs allows the PBMs to strike more profitable bargains from their standpoint. When information is asymmetrical, as it

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Another potential conflict of interest results from a PBM promoting their own pharmacy (a mail order pharmacy) while at the same time reviewing prices and processing prescription claims of community pharmacies." See Stephen W. Schondelmeyer and Marion V. Wrobel, "Medicaid and Medicare Drug Pricing: Strategy to Determine Market Prices," Final Report, Abt Associates Inc., Prepared for Centers for Medicare and Medicaid Services, August 30, 2004, p. 14.

[4] The Prescription Drug Marketing Act of 1987 as modified by the Prescription Drug Amendments of 1992 (P. L. 102-353, 106 Stat. 941) on August 26, 1992 forbids such resale.

[5] See Jean Tirole, *The Theory of Industrial Organization*, MIT Press, 1989, pp 22-25.

is here, the party with less information is less able to strike a "good bargain" or "good negotiation" regarding reimbursement rates for SADs. [6]

7. As recognized by Dr. Willig (at his ¶ 67) and by me,[7] PBMs play a central role in these markets and therefore have better information than most other entities.[8] While we both conclude that PBMs compete against one another for TPP clients, I further conclude that PBMs will not share all strategic market information they possess regarding pricing

[6] An economic literature characterizes market equilibria in such bargaining situations. Specifically, in a Nash or Roth-Nash model of bargaining, the "reservation profit" (in this case, the profit that the PBM could achieve if **no** reimbursement agreement was reached) is relevant to determining the outcome of a bargain for the TPP. If a TPP bargaining with a PBM believed the PBM was forgoing profits of X (based upon limited information about AWPs) by not striking a deal, the outcome would be different than if the TPP thought the PBM was forgoing profits of 2X, or 5X or 10X. What a TPP knows about AWP and AWP/WAC is relevant to the economic outcome of the bargaining between the TPP and PBM.

This literature undermines Dr. Willig's assertion (his ¶ 57) that "Economics teaches that although a firm such as a TPP may be interested in knowing its suppliers' costs or profit margin when negotiating a contract, such knowledge is not necessary for each firm to achieve its actual price through negotiation. Instead, market adjustment to the change in the AWP/WAC ratio may result from TPPs' knowledge of AWP itself or from TPPs' realization that their own profit margins have fallen. So long as TPPs and PBMs can observe increases in AWP or their own profit margins, they are likely to act to compensate for increases in AWP by seeking lower reimbursements."

[7] See Attachment C to my September 3, 2004 Declaration in Support of Class Certification in the MDL matter.

[8] As Dr. Willig notes in his footnote 89, in Attachment C (¶ 24; emphasis in original), I state "As a group and individually, the PBMs possess strategic information advantages as a result of the central and critical position they occupy within the flow of products and payments. *The importance of control of this information cannot be understated, given the overall lack of pricing transparency in this industry.*"

The PBMs are the entities with the most complete information regarding manufacturer rebates, reimbursements paid by TPPs and reimbursements required by retail pharmacies. PBMs act as agents to the TPPs with whom they contract to manage the TPPs' pharmacy benefit plans and aggregate the TPPs' insured lives with those of other client TPPs in order to obtain discounts, price offsets and other financial considerations from manufacturers through the exploitation of volume purchases and formulary designs. *By acting as agents to the TPPs, the PBMs are aware of competitive strategies employed by the TPPs they serve and the reimbursement rates they pay*. At the same time, the PBMs contract with drug manufacturers, agreeing to certain forms of compensation (rebates) for moving market share for the manufacturers to the TPPs. *By acting with the manufacturers, the PBMs are aware of* the competitive financial incentives offered by the large innovator drug companies and *the actual acquisition cost at which they are willing to sell their products.* Finally, the PBMs contract with retail pharmacies, specialty pharmacies and mail order pharmacies to include those providers in the PBM network, thereby moving market share to those retailer providers. As a result, *the PBMs are aware of* the competitive strategies used by and *the financial incentives offered by large and small retailers to PBMs* to be included in the PBM networks.

with the entities with whom they are negotiating.[9] If they did, their shareholders could bring litigation for not fully protecting shareholder value.[10]

Dr. Willig's analysis of the competitive revelation of information results in incorrect assertions concerning market behavior.

8. As mentioned above (¶ 4.c in the main text of this Declaration) Dr. Willig asserts, "There is no economically meaningful reason why the character of the dynamics of the responses to the settlement [*FDB Settlement Agreement*] would differ significantly from responses to the AWP/WAC ratio change."

9. This assertion is plausible only if the economic entities in the markets relevant to this litigation can ascertain and respond to strategic changes to non-transparent price relationships, changes that have been implemented as stealthily as possible, as quickly *without full public disclosure* as they can *with full public disclosure*. This assertion is implausible. I know of no supporting evidence from real world markets.

Dr. Willig's comparative static analysis is incorrect.

10. Dr. Willig introduces a simplified discussion of a type of microeconomic analysis called "comparative statics." As he states in his ¶ 32, such analysis can be used to

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[9] Indeed, entities other than TPPs feel that PBMs possess the better negotiating position. For example, most pharmacists report that PBMs have most of the negotiating power within their networks, especially given their growing market share and the dominance of a few large PBMs; see Schondelmeyer and Wrobel, *op. cit.*, p. 13.

[10] Dr. Berndt and some members of the FTC find that PBMs are workably competitive (see ¶ 42 of the Willig Declaration). However, other members of the FTC have found that PBMs do not compete aggressively enough. For example, David A. Balto, former Policy Director of the Bureau of Competition of the Federal Trade Commission, in "Competitive Concerns and Price Transparency in the PBM Market," FDLI, September/October 2003 Update, at http://www.fdli.org, states:

> "Although PBMs can provide a valuable service, consumers and plan sponsors often do not receive their full benefits due to certain market characteristics and a lack of transparency in the process. Substantial entry barriers and significant switching costs dampen the degree of competition in PBM markets. A lack of transparency about the compensation PBMs receive from pharmaceutical manufacturers prevents plan sponsors from effectively securing the lowest pharmaceutical prices. Before Congress extends the use of PBMs in a Medicare pharmaceutical benefit, it must reform PBM markets to provide substantially greater transparency."

I originally discussed this in my December 16, 2004 Rebuttal Declaration, *In re Pharmaceutical Industry Average Wholesale Price Litigation*, ¶¶ 62-63.

In addition, I find that as a matter of economic theory it would be economically irrational in a bargaining context for PBMs to provide all information they obtained as the central payers in these markets to the parties with whom they are adverse in contract negotiations, that is, the TPPs. Of course they compete; but the competition is constrained by their own profit-maximizing interests.

I have discussed some reasons for the failure of market participants to fully make use of market information in my November 1, 2006 Direct Testimony to this Court in the AWP-MDL litigation (see ¶¶ 80 & 81).

analyze changes in a market characterized initially by "equilibrium" (his ¶ 32) which is subjected to some alteration or "artificial change" (his ¶ 34). Using comparative statics, an economist can describe how that market returns to the original equilibrium, in some cases through changes in other competitive factors.

11. The specific argument he makes is that reimbursement rates for SADs by TPPs were in equilibrium prior to the "change in artificial prices" (the 5% Scheme), an equilibrium determined by his "fundamental variables" – "cost, demand and the nature of competition" (his ¶ 36). He proposes that comparative static analysis will identify if reimbursement rates will return to that earlier equilibrium; that is, "the original actual prices could still be obtained through offsetting changes in other pricing terms such as discounts off AWP, fees or rebate pass-through percentages" (his ¶ 36). He expects this to occur because he assumes the earlier equilibrium was determined by the "fundamental variables" (his ¶ 36). Indeed, he asserts at his ¶ 43 "My analysis of the role of PBMs in the self-administered branded prescription drug distribution business shows that PBMs facilitate the operation of market mechanisms that cause TPP reimbursement rates to return to or retain their levels that prevailed prior to the artificial change following the change in the AWP/WAC ratio and artificial inflation in AWP."

12. The overwhelming evidence demonstrates the following:

- No such equilibrium has existed in these markets for decades.
- The "fundamental variables" he introduces have little impact upon drug transaction reimbursement rates.
- Reimbursement rates and the markets relevant to this matter certainly were not in equilibrium prior to the implementation of the 5% Scheme. Indeed, the motivation for the implementation of the 5% Scheme was the ongoing disequilibria in these markets.
- The "offsetting changes in other pricing terms such as discount off AWP, fees or rebate pass-through percentages" have been going on for decades, and the patterns found over 2001 through 2004 fit trends exhibited by Dr. Willig's data summarizing the last 10 years. Given that these "pricing terms" fit 10 year trends, it is impossible to characterize them as responses to a Scheme first implemented in the fall of 2001.

Dr. Willig's attribution of economic protection afforded to Class-member TPPs by competitive market forces is belied by governmental intervention.

13. As this Court knows, there has been concern on the part of the U.S. Government that information concerning the prices of SADs and PADs are insufficiently transparent for consumers to make informed purchase decisions and for TPPs to negotiate reimbursement contracts in an informed manner. As a result, in May 2003, the Office of Inspector General of the U.S. Department of Health and Human Services put in place practices and procedures requiring drug manufacturers to provide sufficient information for consumers and TPPs to understand the provider acquisition cost for which AWP has been the list price and which the reimbursement formulae negotiated by TPPs attempts to

approximate. The document is entitled the *OIG Compliance Program Guidance*. While aimed at manufacturer behavior, it explicitly recognizes that pricing transparency is not assured by competitive behavior in these markets.[11]

[11] For example, according to the OIG *Compliance Program Guidance* at pages 23733-37:

> "Many federal and state health care programs establish or ultimately determine reimbursement rates for pharmaceuticals, either prospectively or retrospectively, using price and sales data directly or indirectly furnished by pharmaceutical manufacturers. The government sets reimbursement with the expectation that the data provided are complete and accurate. The knowing submission of false, fraudulent, or misleading information is actionable. …
>
> Where appropriate, manufacturers' reported prices [therefore] should accurately take into account price reductions, cash discounts, free goods contingent on a purchase agreement, rebates, up-front payments, coupons, goods in kind, free or reduced-price services, grants, or other price concessions or similar benefits offered to some or all purchasers. Any discount, price concession, or similar benefit offered on purchases of multiple products should be fairly apportioned among the products. … Underlying assumptions used in connection with reported prices should be reasoned, consistent, and appropriately documented, and pharmaceutical manufacturers should retain all relevant records reflecting reported prices and efforts to comply with federal health care program requirements. …
>
> The 'spread' is the difference between the amount a customer pays for a product and the amount the customer receives upon resale of the product to the patient or other payer. In many situations under the federal programs, pharmaceutical manufacturers control not only the amount at which they sell a product to their customers, but also the amount those customers who purchase the product for their own accounts and thereafter bill the federal health care programs will be reimbursed. To the extent that a manufacturer controls the 'spread', it controls its customer's profit.
>
> Average Wholesale Price (AWP) is the benchmark often used to set reimbursement for prescription drugs under the Medicare Part B program. … Similarly many state Medicaid programs and other payers base reimbursement for drugs and biologicals on AWP. Generally, AWP or pricing information used by commercial price reporting services to determine AWP is reported by pharmaceutical manufacturers.
>
> If a pharmaceutical manufacturer purposefully manipulates the AWP to increase its customers' profits by increasing the amount the federal health care programs reimburse its customers, the anti-kickback statute is implicated. Unlike *bona fide* discounts, which transfer remuneration from a seller to a buyer, manipulation of the AWP transfers remuneration to a seller's immediate customers from a subsequent purchaser (the federal or state government). Under the anti-kickback statute, offering remuneration to a purchaser or referral source is improper if one purpose is to induce the purchase or referral of program business. In other words, it is illegal for a manufacturer knowingly to establish or inappropriately maintain a particular AWP if one purpose is to manipulate the 'spread' to induce customers to purchase its product."

See *OIG Compliance Program Guidance for Pharmaceutical Manufacturers*, Department of Health and Human Services, Office of Inspector General, Federal Register, Vol. 68, No. 86.

B. THERE IS NO EVIDENCE OF WIDESPREAD KNOWLEDGE OF THE 5% SCHEME

14. I find no evidence in deposition testimony I have reviewed that demonstrates PBMs realized that the 5% Scheme had indeed occurred when it occurred **and** that they aggressively competed away the reimbursement impact of the Scheme for their client TPPs. Absent that knowledge and subsequent competition, Dr. Willig's assertion that PBM competition negated the "artificial" 5% Scheme fails.

15. At times Dr. Willig leaves unstated the full context of deponent testimony in order to make his assertions that PBMs had knowledge of the Scheme and passed that knowledge on to subsidiary TPPs or to potential client TPPs through competitive bids. For example, at his ¶14, Dr. Willig states "One unique characteristic of this industry is the roles of PBMs. … PBM's roles as intermediaries make it unlikely that an artificial increase in AWP would persist." He continues at ¶ 18 "Of particular significance in evaluating ... class-wide impact … is recognition that TPPs, PBMs and retail pharmacies vary in the degree and nature of their vertical integration." He argues that such vertical integration allows for information sharing between PBMs and TPPs, citing (at his footnote 17) an industry consultant, Matthew Gibbs of Hewitt Associates, as a source of the extent and importance of vertical integration of TPPs and PBMs. Yet Dr. Willig fails to mention that when Mr. Gibbs was asked whether **he** had been aware of the Scheme, he said no.[12]

16. In Attachment D, I provide references to additional deposition testimony materials that confirm that PBMs did not share information about the Scheme with their clients.

17. I **find no evidence** that more than a single PBM understood the 5% Scheme had been effectuated. Specifically, ESI came to realize the Scheme had been implemented some 8 months after the start of the Class Period.[13] ESI acknowledged the increased

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[12] Specifically, in his deposition, Matthew Gibbs responds as follows:

Q: Allow me just to represent to you for the record that [the] complaint alleges that First Databank and McKesson engaged in a conspiracy to increase the markup between WAC and AWP from 20 to 25 percent. We'll just take that as an assumption. Were you aware prior to seeing the Wall Street Journal article or prior to seeing the materials associated with the FDB settlement that there had been such a conspiracy?

A. No.

Q. Were you aware that in sometime in the late 2001 or 2002 that there had been an increase in WAC-to-AWP markups for a variety of branded retail drugs from 20 to 25 percent?

A. No.

Deposition of Matthew Gibbs, Hewitt Associates, *New England Carpenters Health Benefits Fund, et al. v. First Databank, Inc., and McKesson Corporation*, United States District Court District of Massachusetts, C.A. No. 1:05-CV-11148-PBS, October, 27, 2006, pp. 207-208.

[13] In a March 28, 2002 email from Chris Macinski to Ryan Soderstrom (ESI-414-00001762), Mr. Macinski states "It only became apparent to ESI within the last week that AWP changes were occurring without WAC changes. … At that time we began an inquiry to ascertain the number of items and financial impact that this could have on us and our clients. … We are currently working on [client impact]. … There are many [industry repercussions]. Our entire industry is based on AWP. If the AWP becomes an unreliable factor, a pricing paradigm shift may be required. … The network pharmacies are the big winners in the

AWP-to-WAC ratio in a draft letter dated April 5, 2002.[14] The letter was being considered for client distribution; however, I have seen no evidence that the letter was widely distributed. Furthermore, the letter is fairly non-specific and uninformative to TPPs, citing primarily increasing trends in AWP ("for the last four years … exceeded 5%"), trends which had been going on for at least a decade. The letter certainly did not mention "a 5% Scheme" specifically.[15] I have seen additional evidence that several other large PBMs publicly remarked upon AWP increases generally but made no reference to the increased AWP/WAC ratio Scheme.[16]

18. I find no evidence in deposition testimony I have reviewed that demonstrates TPPs realized that the 5% Scheme had indeed occurred when it occurred **and** that they aggressively attempted to negotiate with their PBMs to counter the increased reimbursements induced by the Scheme. Absent that knowledge and ability to negotiate better contracts regarding reimbursement, Dr. Willig's assertion that TPP knowledge negated the "artificial" 5% Scheme fails. I have already addressed his incorrect assertion that TPPs did not even need to know of the Scheme to benefit from the PBM competition. See Attachment D for further details of deposition testimony.

19. If information of this Scheme were so readily available, it is difficult to believe that it would not appear publicly, in some form, particularly information sources relied upon by the industry. I have found no evidence of information reaching the market though the standard public sources of market information.[17] This is an interesting contrast to the AWP case where the parties argued over the impact of various congressional reports, press and other reports regarding the meaning of AWP. Here no such reports exist which, in my opinion, indicates a lack of TPP and consumer knowledge.

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situation … The client [i.e., the class member TPPs] will see an increased trend in direct relation to the increase in AWP … [and] an increase in drug costs."

[14] ESI-414-00001754.

[15] Specifically, the letter states "[F]or the last four years the average increase in Average Wholesale Price ('AWP') has exceeded 5%. The first wave of price increases typically take place in the January through February timeframe. Over the last couple of years these increases have averaged 1 to 1.5%. This year, however, the increase for this period … is closer to 2.5%. The increase for this period also includes an adjustment to increase the difference between wholesale acquisition cost ('WAC') and AWP for certain drugs."

Only with 20/20 hindsight can this mention of "an adjustment … for certain drugs" be characterized in any way as a warning that would raise TPP concern about "a 5% Scheme."

[16] See, for examples, Medco's 2003 Drug Trend Report, which states, "Based on average wholesale price (AWP), drug inflation increased 33 percent from 4.9 percent in 2001 to 6.5 percent in 2002, a level significantly higher than in years past" (MEDCO 000195); and Caremark's 2003 RxTrends report, "Overall, the average wholesale price (AWP) rose 7.4%, significantly more than the 4.8% increase posted in 2001. The biggest increase was for branded products – up nearly 10%" (CMK-AWP001915).

[17] Searches of popular press and industry sites resulted in no information regarding the Scheme. Information regarding the FDB settlement appeared immediately and was readily available in 2006. It should be noted that Dr. Willig has not put forward any information suggesting that the Scheme was known by TPPs.

20. Indeed, rather than demonstrate what PBMs and TPPs knew, Dr. Willig introduces AWP increases for the specific strengths of **only four** drugs[18] (his ¶ 65 and his Table 3) over the first several months of the challenged conduct. He then asserts (his ¶ 66) "It is difficult to believe that an AWP increase of this magnitude would go unnoticed by those who specialize in monitoring drug prices."

- On the contrary, ***there is an abundance of evidence and research showing that the increase of the prices for only four NDCs would go unnoticed***. TPPs do not pay attention to specific increases for certain drugs. Drug reimbursements *overall* represent a small portion of their total budget. Dr. Willig has disregarded the prevalence of Dr. Berndt's "importance of being unimportant."[19]
- Furthermore, Dr. Willig fails to note that the price increases that he cites are **for specific NDCs** of the four drugs, not the drugs themselves.[20] It is simply not the case that a PBM or TPP would monitor AWP increases of single NDCs of any drug or any four drugs. There are much more important costs they are monitoring.
- Even had PBMs, individually or as a group, noticed the AWP increases in the specific strengths of **these four drugs** over a period of several months, it is implausible to assert that these PBMs would have begun to undertake competitive renegotiations of reimbursement terms to negate that impact. In fact, Dr. Willig puts forward strikingly few examples of PBMs understanding of the increases in AWP generally. None of the discovery materials I have reviewed reference a Scheme; they reference ongoing increases in AWP occurring for years.

[18] Lipitor 10 mg; Plavix 75 mg; Prevacid 30 mg; and Wellbutrin SR 150 mg. His period of referenced impact is calendar year 2001, which is really prior to the preponderance of increases by NDC. See Figure 1 of my December 20, 2006 Updated Declaration.

[19] E.R. Berndt, "The U.S. Pharmaceutical Industry: Why Major Growth in Times of Cost Containment?" *Health Affairs*, 20(2), 2001.

[20] For example, Dr. Willig cites the 13.5% AWP increase for Lipitor 10 mg, NDC 0007-1015523. Over the same period, the AWP for two other NDCs rose by 13.5%. However, the AWPs of 2 other NDCs of Lipitor rose by 7.3%, while the AWPs of the remaining 2 NDCs of Lipitor rose by 4.2%. Smaller increases in the AWP occurred for some NDCs of Wellbutrin (at 7%) as well.

C. THE EVIDENCE SHOWS NO CHANGE IN THE TWO MOST IMPORTANT REIMBURSEMENT TERMS IN RESPONSE TO THE 5% SCHEME – THE DISCOUNT OFF AWP AND THE DISPENSING FEE

21. My basic formula for determining reimbursement rates appears as Equation (1) in the main text of this Declaration; it has been recognized by this Court and other experts; and it is used by Dr. Willig in his ¶¶ 80-82 in his discussion concerning changes in the discount off AWP (d) and/or dispensing fees (df), which he incorrectly attributes to direct responses to the 5% Scheme.

I have proposed using Equation (1) as follows. I assume that WAC reflects the wholesale list price that serves as the basis for manufacturer negotiations for unit net revenue or average sales prices (ASP). I assume WAC is strategically determined by manufacturers and was not affected by the Scheme. Introducing superscripts to differentiate prices prior to ("pre") and after ("post") implementation of the Scheme, I denoted the pre-Scheme AWP as AWP^{pre} = 1.20*WAC and the post-Scheme AWP as AWP^{post} = 1.25*WAC. The resulting pre-Scheme and post-Scheme reimbursement rates (allowed amounts = AA) are given by Equation (1) by NDC as follows:

- $AA^{pre} = AWP^{pre}\ (1.00 - d) + df = p*AWP^{pre} + df$;
- $AA^{post} = p*AWP^{post} + df$; and
- $p = (1 - d)$ and $0 < p < 1$.

I assume that p and df (and administrative fees paid to PBMs) were not altered **in direct response** to the Scheme. Therefore, $AA^{post} - AA^{pre} = \Delta AA = p*\Delta AWP$ is the impact of the Scheme upon Class member reimbursement per prescription. Introduction of this into Equation (2) yields aggregate Class-wide damages by NDC. Hence, the Scheme increased AWP and AA for every relevant NDC, *everything else held equal* (i.e., WAC, d, df and administrative fees).

22. Dr. Willig characterizes my proposed damage analysis as follows (at his ¶ 76): "Dr. Hartman claims that TPP reimbursements increase as a result of the alleged scheme based on his assertion that AWP is the basis for reimbursement in many TPP contracts. He cites Judge Saris's opinion … and the Berndt Report … to support the idea that AWP is an important basis for reimbursement."

That is a correct characterization. However, Dr. Willig then incorrectly asserts the following:

- "Dr. Hartman, however, ignores the thrust of Dr. Berndt's analysis that AWP is not the price anyone pays" (his ¶ 76).
- "The apparent confusion over the idea that an increase in AWP translates into increased TPP reimbursements stems from Dr. Hartman's misinterpretation of the use of AWP in contracts between TPPs and PBMs and between PBMs and retail pharmacies. The reimbursement rates in these contracts typically are written as AWP minus a percentage discount plus a dispensing fee. Accordingly, the reimbursement rate depends on AWP, the discount and the dispensing fee" (his ¶ 77).

23. The "apparent confusion" to which Dr. Willig refers eludes me. My analysis of reimbursement, using my Equation (1), is the same as his. It explicitly includes all the terms he proposes: the AWP, the discount off AWP (d) and the dispensing fee (df). Dr. Willig and I disagree about the values taken by d and df in the but-for world.

24. Dr. Willig correctly notes (his ¶ 77) that when I hold, "*everything else equal*" in my analysis, I assume that d and df remain constant **across** the actual and but-for worlds. What does this assumption mean for my analysis? Certainly not that d and df were constant and unchanging. They *were changing*; they *have been changing* over the 1990-2005 period; they have been changing since the 1960s. What it does mean is that **the discount off of AWP (d) and the dispensing fee (df) did not change to any appreciable degree as a direct result of or in response to the 5% Scheme.**

In that case, they should be held constant across the actual and but-for worlds, because they would have changed precisely in the manner they did, absent the Scheme (i.e., they would have changed by the same amounts in the but-for world as they did in the actual world).

25. Dr. Willig's own data support my interpretation and my assumptions. In his Table 2, he presents average discounts off AWP (d) and average dispensing fees (df) for retail and mail order branded prescription reimbursement. I analyze these data using regression methods in Attachment E to this Declaration. In Figures 1.a) through 1.d) below, I reproduce the regression lines summarizing market-wide trends in these components of reimbursement. Note the following:

a) If there were some response in d and df to the 5% Scheme, evidence should be apparent in measurable divergences from the historical trend. Specifically, in 2002-2004, we should see that discounts are above trend and dispensing fees are below trend, by an observable amount. **They are not**.

b) Discounts (d) at retail (Figure 1.a) are precisely on trend in 2003 and slightly below trend in 2002 and 2004. Discounts (d) at mail order (Figure 1.c) are slightly above trend in 2002 and 2004 and slightly below trend in 2003.

c) Dispensing fees (df) at retail are above trend in 2002 and slightly below trend in 2003 and 2004. Dispensing fees at mail order are above trend in 2002 and below trend in 2003 and 2004.

d) Any deviations from trend are much less important than the actual trends themselves. Over 1995-2005 discounts off AWP were rising while dispensing fees were falling, both at retail and at mail order.

e) Indeed, these revealed patterns support the motives for the allegations in this matter: that is, *everything else equal* (i.e., ***given these trends***), retailers approached McKesson and FDB to alleviate their profit squeeze. The 5% Scheme was a method to do so.[21]

[21] It is interesting to note that not only would retailers benefit but so would mail order pharmacies. Many PBMs own their own mail order facilities and would benefit from increases in the AWP when contracts were not renegotiated with their TPPs, a clear incentive for PBMs to not inform their clients of the Scheme.

f) Analysis of these data refutes Dr. Willig's assertions of fact and his conjectures concerning what "could occur." If the Scheme induced a measurable Class-wide response in 2002-2004, increases in discounts (d) and decreases in dispensing fees (df) should deviate, *by a substantial amount,* from market trends. They do not; rather they reveal *a continuation of trends* that were well underway before the 5% Scheme was implemented.

g) These observed trends are part of *everything else held equal* across the actual ("post") and but-for ("pre") worlds.

26. Rather than analyze these actual data, Dr. Willig uses hypothetical examples with unrealistic values for d and df (his ¶ 82) to analyze how changes in d and/or df "could" or "may" negate the 5% Scheme.

Specifically, he assumes that d = 13% pre-Scheme and 17% post-Scheme; that df = $5.00 pre-Scheme and $1.50 post-Scheme. He uses these assumptions to calculate the impact upon reimbursement (AA). I reproduce his calculations in Table 1.A. Dr. Willig assumes a WAC of $80; a pre-Scheme AWP of $96; and a post-Scheme AWP of $100. These results come directly from Equation (1), which is reproduced in Table 1.A.

In his first example of changes induced by the Scheme, Dr. Willig assumes that the discount rate, d, increases from 13% to 17% ***as a direct competitive response*** to the Scheme, while df remains at $5.00.[22] As a result, the allowed amount AA decreases from $88.52 to $88.00, a reduction in $0.52. Hence, for each script filled, a given TPP subject to these contract terms *is* ***better off*** by $0.52. In his second assumed example, the dispensing fee drops from $5.00 to $1.50 ***as a direct competitive response*** to the Scheme, while d remains at 13%. As a result, AA drops by 2 cents, from $88.52 to $88.50, ***a small benefit***, but a benefit nonetheless.

While he does not do so, Dr. Willig could clearly hypothesize with as much factual support that d "would" increase from 13% to 17% **and** df simultaneously "would" decrease from $5.00 to $1.50, ***as a direct competitive response*** to the Scheme. In that case, AA decreases from $88.52 to $84.50, or by $4.02. Indeed, since he is dealing in a purely hypothetical world, Class members could be *made even better off by assuming even greater increases in d and reductions in df*. Dr. Willig has been free to assume anything. In all of his ***hypothetical*** cases, a Class member or group of members ***benefit*** from the 5% Scheme ***because*** of the competitive responses ***assumed*** to occur as a direct result of it.[23]

27. Rather than using hypothetical values for d and df, sound economic analysis dictates using actual market data.

In footnote 15 to this Declaration above, I noted that a Defendant Expert in the AWP-MDL litigation, Mr. Young, asserted that 14% < d < 18%. This range roughly

[22] In his ¶ 114, he hypothesizes that the increase is from 14% to 18%.

[23] Note further that the fact that these benefits are hypothesized to occur **contradicts** Dr. Willig's assertion (at his ¶ 38) that proper comparative static analysis will demonstrate that "fundamental market variables" will drive TPP reimbursement rates back to their pre-artificial-AWP-Scheme level, i.e., "to their levels that prevailed prior to the artificial change." If that is true, **how can the TPPs be *made better off*?** They can only be made ***as well off*** as they were.

summarizes discounts *across* retail and mail order presented in Dr. Willig's Table 2 and my Figures 1.a and 1.c. Within retail, 11.8% < d < 14.8%, over the ten year period. Within mail order, 15.0% < d < 21.0%. Dispensing fees at retail range from $2.50 to $1.95 and at mail order range from $1.82 to $0.41. Given these data, one can say the following about Dr. Willig's hypothetical values for d and df.

a) His increase in d is assumed to be 4 percentage points (from 13% to 17%), and it is assumed to *occur immediately under his assumptions of transparent pricing information and vigorous PBM competition*.

- In the real world, d increased at retail by 3 percentage points (from 11.8% to 14.8%) *over 10 years*.
- If we look to measure the immediate market-wide response to the Scheme, we should compare 2002-2004 with 2001 (which would be the last pre-Scheme measure of d). From 2001 to the last year of data 2004, d increased at retail by only 0.9 percentage points, from 13.9% to 14.8%.
- The increase in d at mail order was 6 percentage points *over ten years*, from 15% to 21%. From 2001 to 2004, the increase was 2.1 percentage points.
- Relative to actual data, Dr. Willig's assumed *immediate* increase in d ***is exaggeratedly large*** for both retail and mail order reimbursement. It is particularly exaggerated for sales at retail, which account for the preponderance of units reimbursed.[24]

b) His assumed decrease in df is $3.50, from $5.00 to $1.50, which occurs almost immediately.

- At no time over the ten year period (as shown in Figure 1.b) was df at retail above $2.50 or below $1.95. The decrease in df from 2001 to 2004 was $0.26.
- The decrease in df at mail order over ten years was $1.41 (from $1.82 to $0.41). The average dispensing fee was never as high as $5.00. From 2001 to 2004, the decrease was $0.68.
- Relative to actual data, Dr. Willig's assumed *immediate* decrease in df ***is exaggeratedly large*** for both retail and mail order reimbursement particularly retail.

28. Indeed, if I recreate his analysis using ***actual data*** I corroborate the impact and injury that I found in my December 20, 2006 Updated Declaration. Specifically, Table 1.B uses the real world data and Dr. Willig's assumed WAC to assess damages. I assess damages under two sets of assumptions: a) Dr. Willig's assumption that the market response to the Scheme was immediate and led to immediate renegotiation of d and df;

[24] The National Association of Chain Drug Stores (NACDS) reports that the number of prescriptions filled at retail was 93.5% in 2004 and 6.5% at mail order (as accessed at http://www.nacds.org/wmspage.cfm?parm1=506, Pharmacy Sales and Prescriptions, by Type of Store, 1995-2005). Novartis found 96% of prescriptions were filled at retail over 2001-2002; see Novartis, *Pharmacy Benefit Report: Facts & Figures,* 2002 Edition, p. 16.

and b) my assumption that the observed changes in d and df reflect overall competitive market trends and not an immediate response to the Scheme.

a) Dr. Willig's assumption – observed changes in d and df are ***a direct result of competitive responses to the Scheme***

- At retail, d = 13.9% and df = $2.21 in 2001; d = 14.5% and df = $2.04 on average over 2002-2004.
- AA pre-Scheme was $84.87 and AA post-Scheme was $87.54.
- The overcharge per script filled at retail was $2.67.
- At mail order, d = 18.9% and df = $1.09 in 2001; d = 20.4% and df = $0.60 on average over 2002-2004.
- AA pre-Scheme was $78.95 and AA post-Scheme was $80.20.
- The overcharge per script filled at mail order retail was $1.25.

b) My assumption – the observed changes are a ***continuation of competitive trends occurring in the market as a whole***; they are not a direct result of competitive responses to the Scheme.

- At retail and mail order, d and df are the same in the actual world and the but-for world. Given the Scheme, they are *one of the things held equal.*
- At retail, d = 14.5% and df = 2.04 over 2002-2004 absent the Scheme and with Scheme.
- AA but-for the Scheme = $84.12 and AA post-Scheme was $87.54.
- The overcharge at retail was $3.42 per script filled.
- The calculation at mail order would be analogous.

c) Dr. Willig's data and correct economic analysis support my assumptions.

- They corroborate my finding of Class-wide impact and injury. The overall market trends revealed in d and df contradict at an aggregate market-wide level Dr. Willig's assertion (at his ¶ 48) "The evidence that I have examined does not support Dr. Hartman's assumption that discounts off AWP were unaffected by the alleged scheme."
- While he puts forward examples of contract renegotiations, those renegotiations were occurring in the industry since at least 1990. Indeed, many of the contract renegotiations he puts forward (his ¶ 48) occurred prior to the implementation of the Scheme or were not implemented after the Scheme.[25] Since the price effects of the Scheme only became apparent to the

[25] The contracts (and their amendments) cited by Dr. Willig (his ¶¶ 48, 85) that were enacted before the Class Period include the following: PCS Health Systems, Inc. / Principal Life Insurance Company (CMK-AWP012850-53, CMK-AWP012857-75, CMK-AWP012815-37); PAID Prescriptions LLC / Del Monte (MHS A_0004999-5018); Public Employees' Retirement System (PERS) / Medco Containment Services, Paid Prescriptions Inc. and National Rx Services, Inc. (MHS A_0003767-99, MHS A_0003837-924, MHS A_0003829-32); Operating Engineers Local 66 / PAID Prescriptions Inc. and Flex Rx of Pennsylvania Inc.

most informed entities (ESI; March 2002; see ¶¶ 2.e) and 14.a)) during the first quarter of 2002; and since the revealed industry-wide values of d and df are on trend over the entire 1995-2004 period; the changes he cites simply cannot be attributed to the Scheme. They would have occurred in any case.

- They demonstrate calculation of aggregate Class-wide damages for a unit of the particular NDC for which the WAC was $80.00 in 2002-2004.
- They demonstrate how impact and injury would be demonstrated for any NDC with any WAC over 2002-2004.

(MHS A_0005160-75, MHS A_0005177-85); and Moyer Packing Company / PAID Prescriptions LLC (MHS A_0005138-59).

Figure 1.a
Average Retail Reimbursement Discount off AWP
for Brand Drugs (1995-2004)

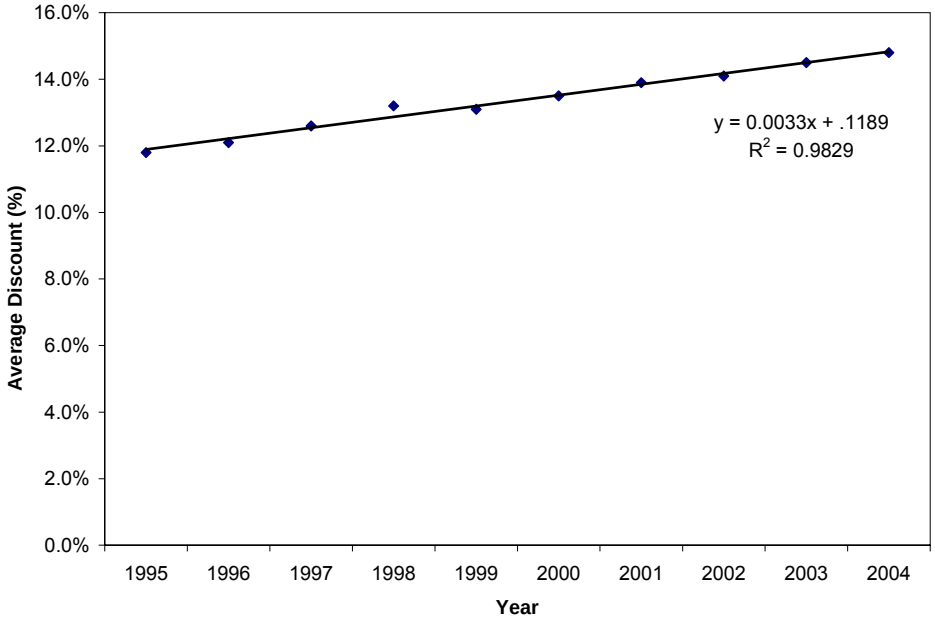


Figure 1.b
Average Retail Dispensing Fee for Brand Drugs (1995-2004)

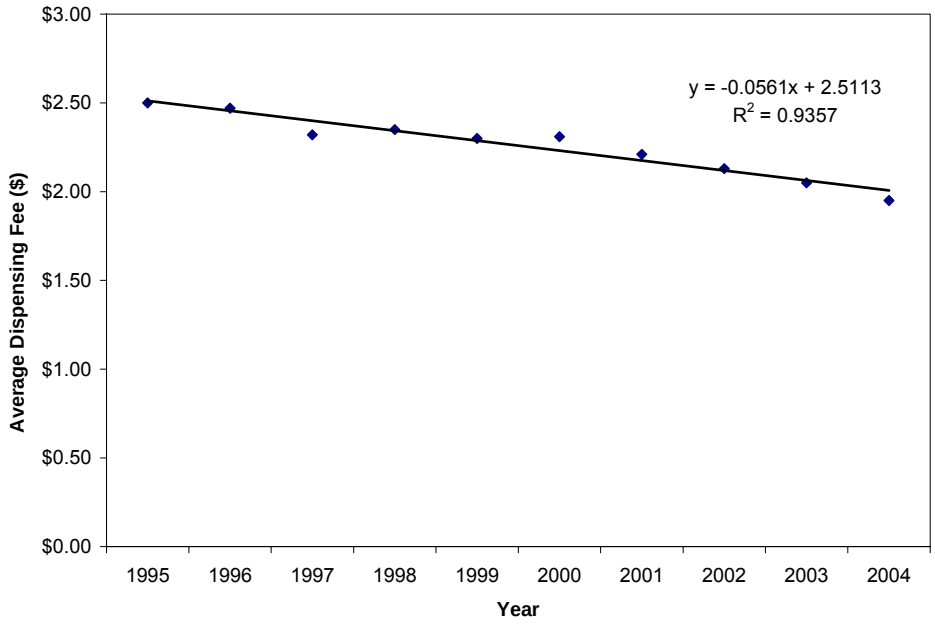


Figure 1.c
Average Mail Order Reimbursement Discount off AWP
for Brand Drugs (1995-2004)

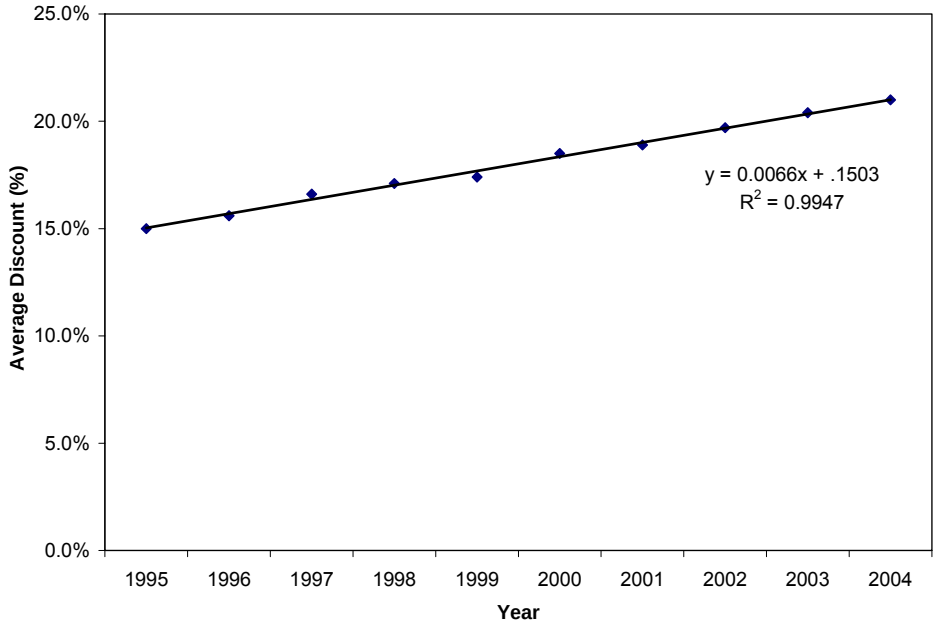


Figure 1.d
Average Mail Order Dispensing Fee
for Brand Drugs (1995-2004)

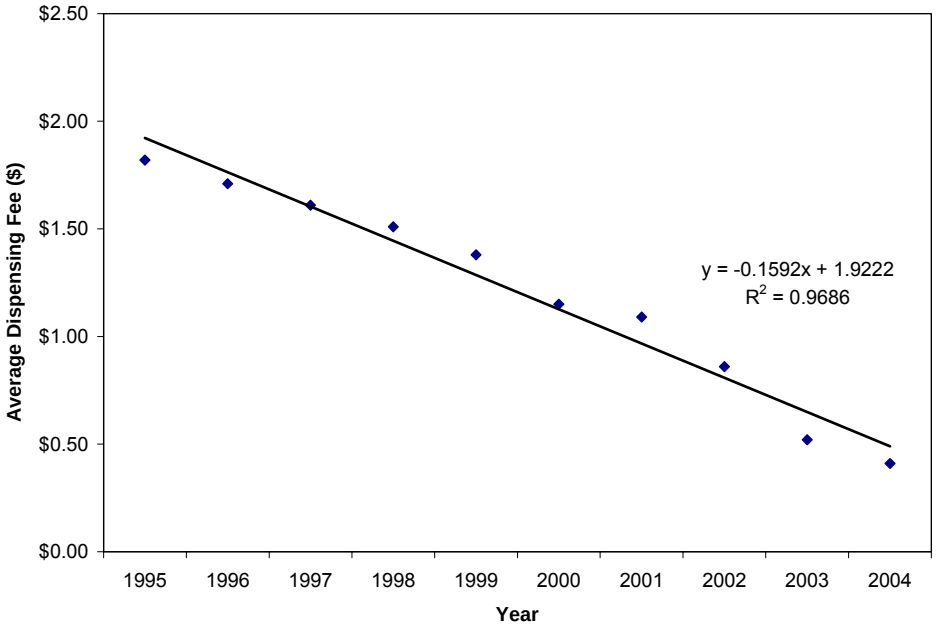


Figure 2.a
Number of NDCs with Spreads Increasing to 25%
(August 2001 to December 2004)

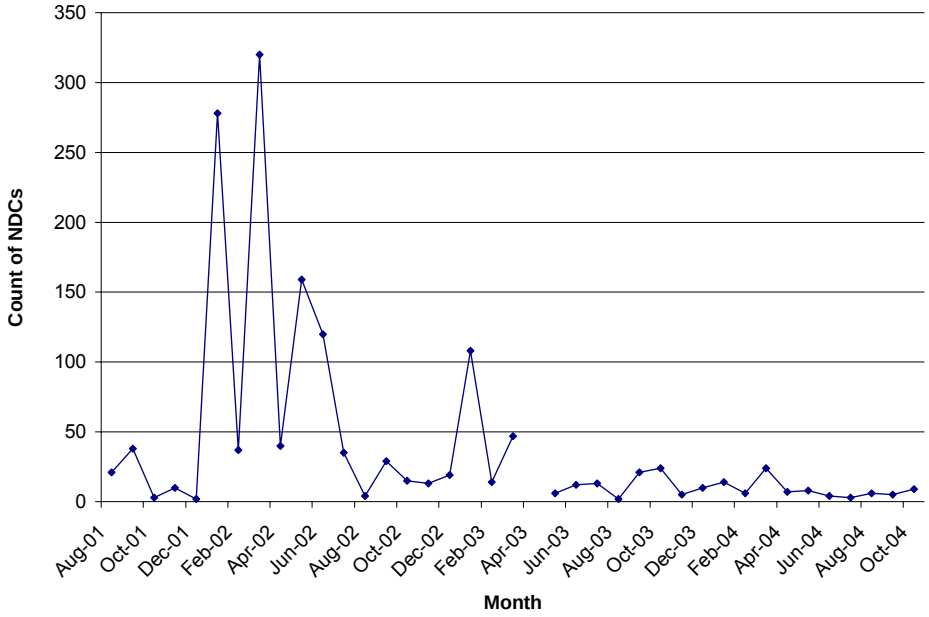


Figure 2.b
Number of NDCs with Spreads Increasing to 25%
(January 1994 to December 2004)

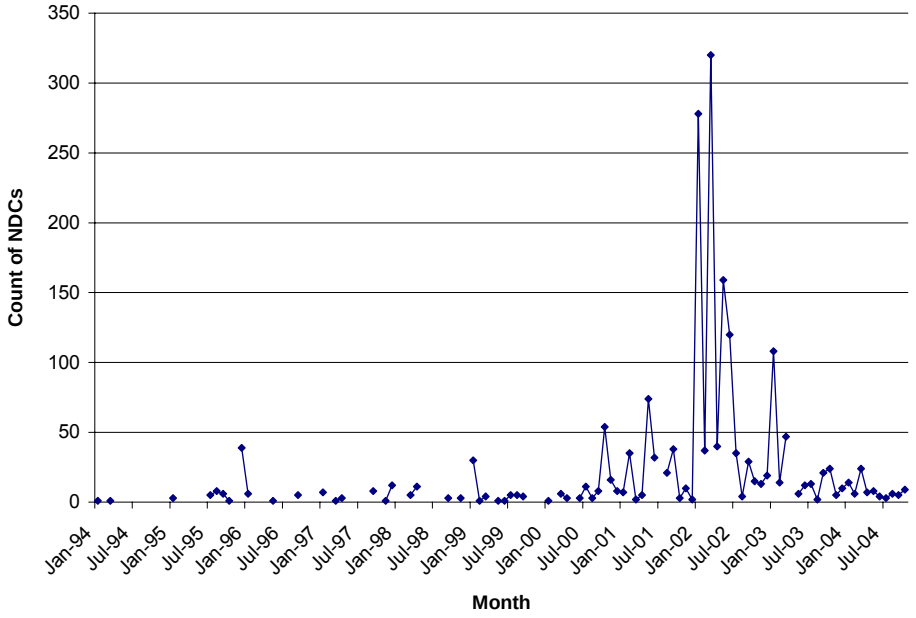
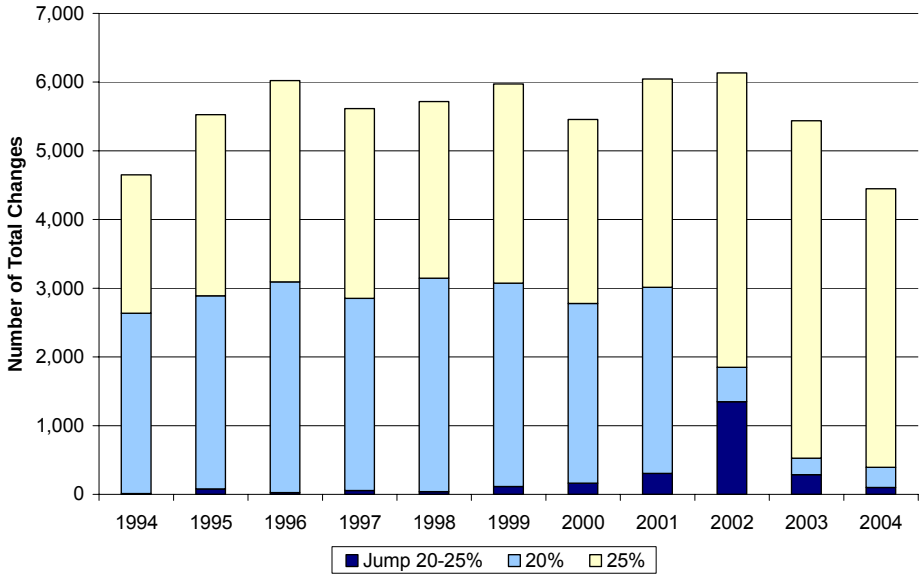


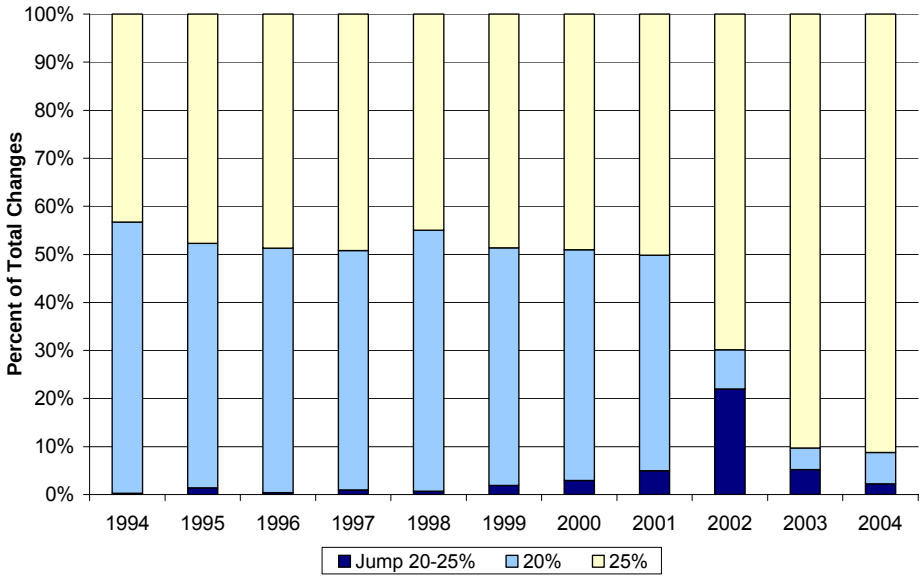
Figure 2.c
Distribution of First DataBank Price Changes (1994-2004)



Note: Price changes occuring at levels other than those presented here have been excluded from this figure; including changes at levels below 20%, between 20 and 25% and above 25%.

Source: First DataBank Data, 1994-2004.

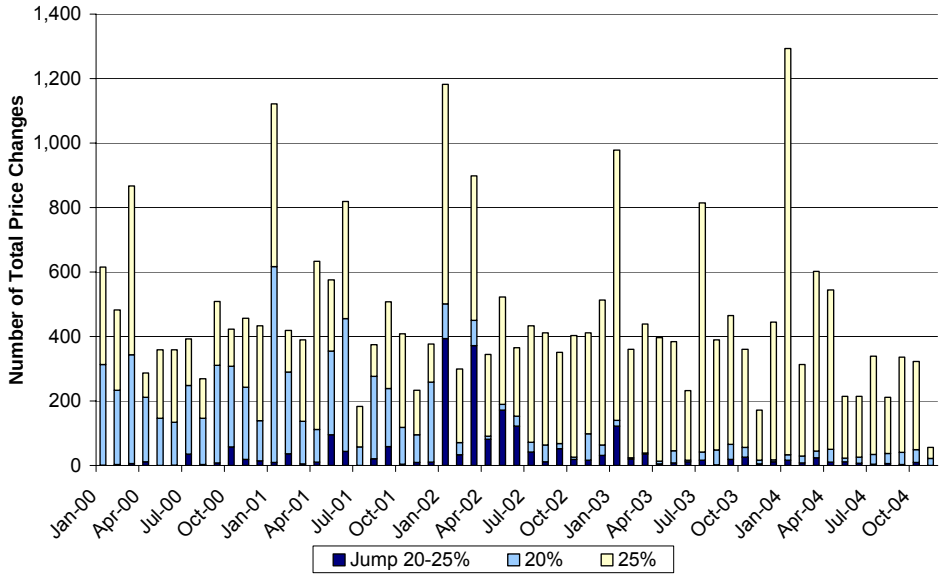
Figure 2.d
Distribution of First DataBank Price Changes (1994-2004)



Note: Price changes occuring at levels other than those presented here have been excluded from this figure; including changes at levels below 20%, between 20 and 25% and above 25%.

Source: First DataBank Data, 1994-2004.

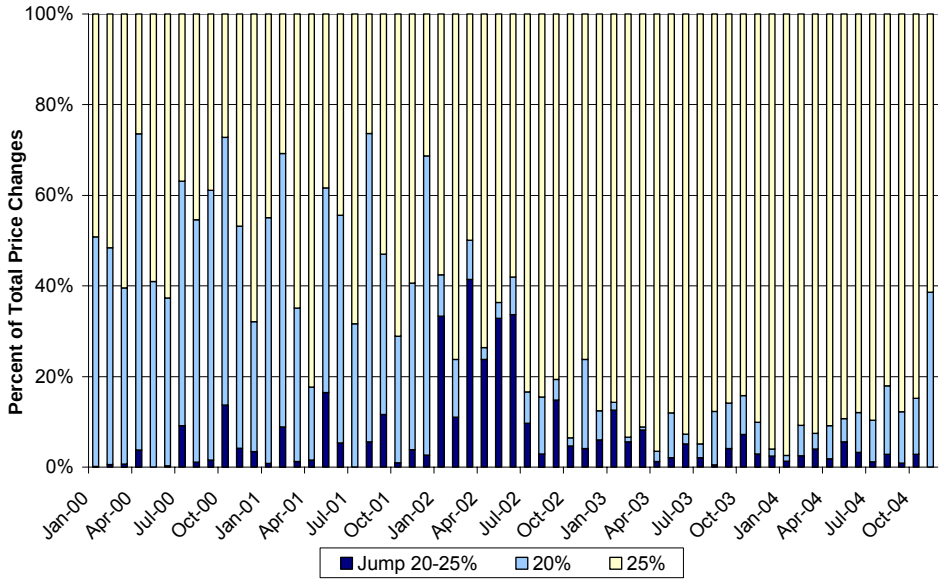
Figure 2.e
Distribution of First DataBank Price Changes (2000-2004)



Note: Price changes occuring at levels other than those presented here have been excluded from this figure; including changes at levels below 20%, between 20 and 25% and above 25%.

Source: First DataBank Data, 2000-2004.

Figure 2.f
Distribution of First DataBank Price Changes (2000-2004)



Note: Price changes occuring at levels other than those presented here have been excluded from this figure; including changes at levels below 20%, between 20 and 25% and above 25%.

Source: First DataBank Data, 2000-2004.

Table 1.A: Analysis of Discount off AWP (d) and Dispensing Fee (df) Using Willig's Assumptions

Basic List Price Assumptions:

WAC = $80.00
AWP^{PRE} = (1.2 * WAC) = $96.00
AWP^{POST} = (1.25 * WAC) = $100.00

(1) Allowed Amount (AA) = AWP (1 - d) + df

Dr. Willig's Extreme Assumptions:

a) d^{PRE} = 13%; df^{PRE} = $5.00
d^{POST} = 17%; df^{POST} = $5.00

b) d^{PRE} = 13%; df^{PRE} = $5.00
d^{POST} = 13%; df^{POST} = $1.50

c) Changes are a direct result of the 5% Scheme

Assumptions	AA^{PRE}	AA^{POST}	ΔAA as Overcharge
a) and c)**	$88.52	$88.00	-$0.52
b) and c)	$88.52	$88.50	-$0.02
a), b) and c)	$88.52	$84.50	-$4.02

** *Sample calculation:*
AA^{PRE} = $86.00 * (1 - 0.13) + $5.00 = $88.52; AA^{POST} = $100.00 * (1 - 0.17) + $5.00 = $88.00

Table 1.B: Analysis of Discount off AWP (d) and Dispensing Fee (df) Using Actual Data

A. Use of Actual Retail Data (Willig's Table 2):

a) d^{PRE} = 13.9%; df^{PRE} = $2.21 (2001)

b) d^{POST} = 14.5%; df^{POST} = $2.04 ($d^{POST}$, df^{POST} are averages from 2002-2004)

c) Changes are a direct result of the 5% Scheme

Assumptions	AA^{PRE}	AA^{POST}	ΔAA as Overcharge
a), b) and c)	$84.87	$87.54	$2.67

B. Use of Actual Mail Order Data (Willig's Table 2):

a) d^{PRE} = 18.9%; df^{PRE} = $1.09 (2001)

b) d^{POST} = 20.4%; df^{POST} = $0.60 ($d^{POST}$, df^{POST} are averages from 2002-2004)

c) Changes are a direct result of the 5% Scheme

Assumptions	AA^{PRE}	AA^{POST}	ΔAA as Overcharge
a), b) and c)	$78.95	$80.20	$1.25

C. Use of Actual Retail Data:

a) d^{PRE} = 14.5%; df^{PRE} = $2.04 ($d^{POST}$, df^{POST} are averages from 2002-2004)

b) d^{POST} = 14.5%; df^{POST} = $2.04 ($d^{POST}$, df^{POST} are averages from 2002-2004)

c) Changes are a result of competitive market trends, not the 5% Scheme

Assumptions	AA^{PRE}	AA^{POST}	ΔAA as Overcharge
a), b) and c)	$84.12	$87.54	$3.42

D. DR. WILLIG'S ANALYSIS AND ASSERTIONS CONCERNING OTHER CONTRACT TERMS DETERMINING NET REIMBURSEMENT RATES ARE INCORRECT

29. Dr. Willig introduces (at his ¶ 78) a laundry list of other TPP drug reimbursement contract terms that "could" or "might" be altered and therefore "could" or "might" have negated the impact and injury of the 5% Scheme on individual Class members or for the Class as a whole. He proceeds to analyze them in his ¶¶ 80-107. I address them in his order, demonstrating that his analysis fails. I have already demonstrated the failure of his analysis regarding the discount off AWP (d) and the dispensing fee (df) (his ¶¶ 80-83) in Section C above.

The rebate-pass-through percentage paid by PBMs to Class-member TPPs (¶¶ 84-86)

30. Dr. Willig's frequent use of conjecture rather than evidence and his mischaracterization of the evidence is particularly apparent in this analysis, where he identifies changes of contract terms concerning rebate-pass-through percentages that "could have" negated the impacts of the Scheme. He asserts the following:

- "If, as a result of the alleged scheme, a TPP extracts a greater percentage pass-through, then the alleged scheme's affect on actual reimbursement will be reduced or completely eliminated" (his ¶ 84).
- "The evidence I have reviewed shows that TPPs and PBMs negotiate changes in the rebate pass-through percentage in response to changes in market conditions" (his ¶ 85).
- "Dr. Hartman's critical assumption is that none of the changes in the rebate pass-through percentage [introduced in Dr. Willig's ¶ 85] are the result of the change in the AWP/WAC ratio and the artificial inflation in AWP. This assumption is flawed and inconsistent with the empirical evidence" (his ¶ 86).

My assumptions and conclusions are not inconsistent with the empirical evidence; indeed, they are completely consistent with the evidence he puts forward. None of the contract negotiations he cites could have been in response to the Scheme, since they were all negotiated prior to the Scheme.

31. Of course, contract terms will be renegotiated in response to overall market trends. But there is no evidence the market was sufficiently aware of the Scheme to lead to such renegotiation. Dr. Willig has put forward no information that any such renegotiations occurred after and in direct response to the Scheme.

32. In addition, there is no evidence that the amount of rebates changed due to the Scheme. There is no evidence that PBMs share data regarding rebates with their TPPs. In fact, only recently have transparency issues been raised regarding rebates paid to PBMs.

Risk-sharing contract terms designed to effectuate "AWP Neutrality" (¶¶ 87-89)

33. Dr. Willig introduces what he calls "an interesting provision" in the BCBS of Michigan plan negotiated with Merck-Medco and in effect over 2000 to "at least" 2002. The provision called for reimbursement to be based upon the least costly alternative of four pairs of drugs – Zocor and Lipitor; Prilosec and Prevacid; Claritin and Allegra; and Procardia and Adalat.[26] Specifically, if the reimbursement (and therefore the underlying AWP) for one drug was higher than another of each pair, Merck-Medco would use the reimbursement rate (and AWP) of the least costly alternative.

I have formally analyzed and calculated damages for a pair of drugs for which the Least Costly Alternative (LCA) reimbursement treatment was in effect.[27] It is a straightforward analysis. It would require survey information of the prevalence of such terms among TPPs for the SADs at issue here; Dr. Willig has cited its use by a single TPP. While it is my understanding that such terms are not prevalent in this context, I would ascertain whether that understanding is factual during the damage analysis and adjust the analysis as necessary.

Retroactive contract adjustments (¶¶ 90-92)

34. Dr. Willig asserts (¶ 90) that my "methodology … ignores the possibility that TPPs may have been in a position to amend an existing contract or receive retroactively compensation from PBMs for any increases in overall drug expenses." He cites (¶¶ 91 & 92) as evidence two contracts:

- An April 1, 2000 Harvard Pilgrim and MedImpact contract which "allowed either party to renegotiate the contract in the wake of an 'Adjustment Event.'" He puts forward no evidence that an Adjustment Event was triggered after the Scheme, which seems a compelling oversight precisely because he is making the point that these terms "could have protected" or "did protect" TPPs (specifically, Harvard Pilgrim) from the Scheme.[28]
- A CalPERS contract with "MEDCO" which allowed in October 1996 for retroactive application (to August 1995, approximately 1 year) of the agreed-upon retail rebate percentage to mail-order prescriptions. Given the small percentage represented by mail order generally (see my footnote 24 above), the impact of this retroactive renegotiation was minimal. It also took place in 1995-1996.

[26] A preliminary analysis of these drug pairs shows that the choice of least costly drug did not change for BCBS of Michigan after the Scheme was implemented. Hence, the substitution effect was the same, pre- and post-Scheme. As an aside, the last pair of drugs is not part of the Appendix A drugs.

[27] See my analysis in the Lupron matter, which refers to LCA in the context of Medicare. The LCA provision was formally imposed by a succession of states for reimbursement of Lupron versus Zoladex.

[28] He also makes the somewhat curious assertion that "The key issue here is not whether Harvard Pilgrim ever invoked this contract provision. Rather, [it is] the fact that these types of contract terms exist …." It would seem to me that the key issue is ***indeed*** whether one of the few examples he puts forward as protecting TPPs from the Scheme actually did so. An empirical economist would be interested in that question.

35. I conclude the following. The evidence of retroactive renegotiation of contracts is minimal at best. The examples put forward by Dr. Willig are both prior to the Scheme; there is no evidence that the one that might have helped negate the Scheme did indeed do so. Hence, such renegotiation has occurred, to a very limited degree, as a result of overall competitive market events; such renegotiation will continue into the future for the same reasons. There is absolutely no evidence that such renegotiations have increased post-Scheme, as a result of the Scheme; hence, patterns of retroactive renegotiations appear to be the same in the actual and but-for worlds and therefore should be part of *everything else equal*, that is, *everything else held constant*.

Shifting of the overcharge to insureds through copay design and levels (¶¶ 93-99)

36. Dr. Willig discusses at a very broad and general level the very well understood evolution in the design and level of copayments for SADs that have been occurring for decades.[29] These changes were occurring prior to the Scheme. There is simply no evidence that these changes were accelerated in any way as a result of the Scheme, a Scheme about which so little information reached market participants. Dr. Willig is simply overreaching in his attempt to attribute changes in copay patterns or levels to the 5% Scheme. These changes would have been the same, absent the Scheme, and therefore should be part of *everything else held constant*.

Usual and Customary Reimbursement

37. As discussed in Section VI of the main text of this Declaration, Dr. Willig makes incorrect statements about the importance of U&C reimbursement (see Table 2 for a summary of Plaintiffs' claims data regarding U&C).

[29] I have previously addressed these trends in my September 3, 2004 Declaration in Support of Class Certification in the AWP-MDL matter, particularly in Attachment C.

Table 2: Comparison of U&C and AWP for Appendix A Drugs

Philadelphia Federation of Teachers Health and Welfare (PFTHW)

Total Number of Claims	197,263	100.0%
Claims where U&C ≤ AWP	46,362	23.5%
Claims where U&C > AWP	150,901	76.5%
Claims where U&C ≤ AWP - 16%	243	0.1%
Claims where U&C > AWP - 16%	197,020	99.9%

Note: The discount off of AWP is taken from the Philadelphia Federation of Teachers Health and Welfare contracts as described in the October 18, 2006 deposition of Arthur Steinberg (p. 151).

Teamsters Health and Welfare Fund (THWF)

Total Number of Claims	336,804	100.0%
Claims where U&C ≤ AWP	6,282	1.9%
Claims where U&C > AWP	330,522	98.1%
Claims where U&C ≤ AWP - 15.5%	58	0.0%
Claims where U&C > AWP - 15.5%	336,746	100.0%

Note: The discount off of AWP is taken from the Teamsters Health and Welfare contracts as described in the October 5, 2006 deposition of William Einhorn (p. 115).

Pirelli Armstrong

Total Number of Claims	101,410	100.0%
Claims where U&C ≤ AWP	22,711	22.4%
Claims where U&C > AWP	78,699	77.6%
Claims where U&C ≤ AWP - 13%	409	0.4%
Claims where U&C > AWP - 13%	101,001	99.6%

Note: The discount off of AWP is taken from the 2000 Southern Benefit Administrators Annual Report as described in the October 19, 2006 deposition of Donny Dowlen (p. 89).

E. DR. WILLIG'S ANALYSIS AND ASSERTIONS CONCERNING OTHER FACTORS FAIL

A given manufacturer might reduce its WAC in response to the Scheme.

38. Dr. Willig proposes that, contrary to the assumption I made at direction from Counsel, WAC cannot be assumed unaffected by the Scheme. While I took this assumption at the direction of Counsel, I did analyze its reasonableness. I find it reasonable. I find Dr. Willig's counterfactual implausible.

- The WAC is one of the two important list prices set by the manufacturer. To the extent that this list price determines the manufacturers' ASP, it is the most important list price. Manufacturers set the WACs of their innovator drugs based upon detailed strategic analyses placing each drug within the spectrum of therapeutic substitutes. The strategic analyses take account of performance attributes (e.g., efficacy, safety, side-effect profiles and drug interactions) and relative transaction prices signaled by WAC. Generally speaking, manufacturers would not simply shift their WACs to accommodate some Scheme implemented by independent reporting agencies, a Scheme about which the manufacturers were not entirely aware.
- Indeed, the *Complaint* identifies cases where manufacturers did not know about the change in the AWP/WAC spread.[30]
- Likewise, I understand that McKesson and FDB coordinated changes in the AWP/WAC spread to those times when new WACs were announced, thereby concealing the altered spread to the non-observant.[31]

While I have not put forward evidence that the relevant WACs were unaltered by the Scheme, such an analysis is easy enough to do. I just need to analyze trends in the WAC pre- and post-Scheme. A preliminary review of data shows that WAC decreases after implementation of the Scheme were *de minimis*.[32] To the extent that such an analysis is necessary, I will implement it more thoroughly during the damages phase of the litigation and incorporate any meaningful results into my damage calculations.

[30] *Complaint* ¶ 136.

[31] *Complaint* ¶ 126.

[32] 15 NDCs (five different drugs) had decreases in WACs after implementation of the Scheme for the Appendix A NDCs. This is out of a total of over 1,400 NDCs. A preliminary analysis of decreases in WACs over time for brand NDCs shows that decreases in WAC do occur but very infrequently. I accept these changes as reflecting manufacturer strategy rather compensation for the Scheme. Should there be a particular NDC for which a manufacturer decreased the WAC explicitly to maintain a pre-Scheme AWP, the damage calculated for this NDC would be zero in Equation (1).

The shift from a 1.20 to 1.25 AWP/WAC reflected market trends for some NDCs rather than effects of the Scheme

39. Empirical analysis demonstrates that if this assertion is true, the number of NDCs involved is *de minimis*. In Figure 1 of my December 20, 2006 Updated Declaration, I presented measures of the number of NDCs for which the spread was increased from 1.20 to 1.25 when the manufacturer reported its WAC to FDB. I reiterate that Figure as Figure 2.a here.

It is useful to recall how the FDB's reporting procedure worked through March 2005. A specific manufacturer would report its strategic change in its WAC or its WAC and either its desired AWP or its desired AWP/WAC spread. Figure 2.a merely indicates the number of NDCs for which the spread was increased (generally from 1.20 to 1.25) when the relevant manufacturer reported a change in its WAC.

- Figure 2.b extends the information in Figure 2.a back to January 1994. This Figure presents the monthly count of NDCs for which the spread was generally increased from 1.20 to 1.25 when the WAC was reported. Figure 2.b indicates that until late 2000 and into 2001, there were very few increases in the spread from 1.20 to 1.25.[33]

40. Putting these numbers in the context of **all innovator drugs** (including Appendix A drugs and non-Appendix A drugs) for which we have FDB information, Figures 2.c and 2.d present respectively, on an annual basis, the number and the percentage of NDCs for which changes in the WAC were reported while the spread remained at either 1.20 or 1.25, or increased from 1.20 or below to 1.25. Note the following:

- The number and the percentage of reported changes in the WAC are predominated by innovator drug manufacturers which maintained a spread of 1.20 or 1.25. This is the source of the notion that some innovator drug manufacturers were "20%" manufacturers and others were "25%" manufacturers.
- Until 2001, on an annual basis, there were relatively few shifts from 1.20 to 1.25 when manufacturers reported their WACs.
- Once the shifts subject to the challenged conduct had occurred (indeed, by 2003), the preponderance of reported WAC changes was at the 25% AWP-to-WAC spread. Prior to 2002, the mix of WACs reported at the 20% spread and the 25% spread was about equal, approximately 50/50. Indeed, from 1991 through 1998, nearly 60% of the WACs were reported with 20% spreads.

[33] The two months that reveal larger counts (although still very small numbers of NDCs) are December 1996 and January 1999. The 39 NDCs that experience the "jump" or "bump" from 1.20 to 1.25 in December 1995 are made up of Novartis and Purdue Pharmaceutical NDCs. All Purdue NDCs are for one drug, MS Contin Tablets (16 NDCs) and the majority of the Novartis NDCs (totaling 18 NDCs) are sold in the form of eye drops. The 30 NDCs that experience the jump in January 1999 are made up entirely of Monarch Pharmaceutical NDCs for a number of different drugs. Monarch is a subsidiary of King Pharmaceuticals. In December 1998, Monarch acquired the rights to market and distribute a number of drug products from Hoechst (HMR). These products included Altace, Silvadence and AVC, all of which are in the group of NDCs that jump during this month.

- There is no competitive market trend apparent in spreads from 1.20 to 1.25 that merely continued through the challenged period. There was a sudden change in 2001-2003.

41. Figures 2.e and 2.f present these counts and percentages in more detail (monthly) for the period immediately prior to the period of challenged conduct through January 2005. These Figures merely give more granularity to the conclusions discussed above.

42. I conclude that absent an explicit showing that a specific manufacturer intended to increase the spread of its drugs from 1.20 to 1.25 when it reported changes in its WACs, its drugs should be included as subject to the challenged conduct. Dr. Willig has put forward no evidence to the contrary.

The importance of the non-Appendix A drugs

43. Figures 2.a through 2.f demonstrate that there are a significant number of drugs (NDCs) that were not subject to the 5% Scheme. On a count or percentage basis, this number of drugs is large. On a dollar basis, it is less than the drugs subject to the Scheme, as noted by Dr. Willig in his Table 1.

44. Dr. Willig takes as a point of departure the fact that there are drugs not subject to the challenged conduct (using his terms, the "Appendix A" drugs are subject to the challenged conduct; the "non-Appendix A drugs" are all others). He presents (at his ¶¶ 115 -117) a hypothetical analysis in which he calculates that if the discount (d) off AWP is decreased **in direct response to the Scheme** by 2.5 percentage points, the fact that the Class reimburses for both Appendix A and non-Appendix A drugs at a common reimbursement formula of AWP (1.00 – d) + df will negate any aggregate injury to the Class.

His analysis fails for the following reasons.

- As I have demonstrated above, there is absolutely no evidence supporting Dr. Willig's assertion that TPPs were able to increase the discount off AWP as a response to the Scheme. Hence, there is no cross-subsidization to reduce reimbursement rates for non-Appendix A drugs.
- Indeed, the evidence supports the conclusion that overall competitive market trends have determined the changes observed in aggregate average discount rates (d) and dispensing fees (df).
- However, **even if** we were to assume, **incorrectly**, that the data measuring changes in d from the most relevant pre-Scheme period (2001) to the post-Scheme period were the result of competitive market responses to the Scheme, then d decreases at retail by **0.2 percentage points** from 2001 to 2002 and by **0.9 percentage points** from 2001 to 2004.
- Dr. Willig likes to make his points with hypothetical examples, which ignore real world market data that he has presented. He has argued, as I discussed earlier, that a reduction in approximately 4 percentage points (his ¶ 82 and his ¶ 114) is needed to eliminate injury for Appendix A drugs taken separately. Here he argues

> that a reduction of 2.5 percentage points is needed, once assumed cross subsidization is allowed to non-Appendix A drugs. As he asserts, "the required increase in discount off AWP to generate no impact **is only** 2.5 percentage points."

While these hypothetical changes may seem small to him, they are not small based upon actual market data. The market reveals a shift of 0.2 to 0.9 percentage points in d over 2001 through 2004 at retail; **and that shift would have occurred absent the Scheme.**

Attachment D

Attachment D
Summary of Selected Deposition Testimony by Third-Party Payors

BLUE CROSS BLUE SHIELD OF MT
Deposition of Tina Wong, Blue Cross Blue Shield of MT, November 14, 2006

- *Blue Cross Blue Shield of Montana (BCBS-MT) does not track changes in AWP over time or by individual drugs or groups of drugs*

> Q. Do you recollect yourself ever undertaking an analysis of the trend of AWP over a period for a year or more?
> A. No, I've never done that.
> Q. Okay. Did you ever undertake an analysis of the trend of AWP prices in respect to any particular drug or group of drugs?
> A. No, I've never done that.
> Q. And is that consistent with your testimony that the AWP was not an important factor for you to consider as part of your duties?
> A. Well, it's important to us that that's what—you know, that's the amount we pay the pharmacy, so it's important in that aspect, but I don't monitor—I've never monitored the increase of AWP over –over time. [pp. 191-192]

DISTRICT 37
Deposition of Rosaria Esperon, District 37, November 6, 2006

- *District 37 was unaware of the changes to First DataBank AWPs and the increase in the spread between WAC and AWP*

> Q. Did the – did anyone representing Express Scripts ever say to you that by switching the source of the AWP benchmark from Red Book to First Databank your plan was going to save money?
> A. No. They never said that to us.
> Q. Did anyone from Express Scripts ever say to you that they had noticed that there had been increases in the spreads between wholesale acquisition cost and the AWP as reported by First Databank?
> A. No. I wish they had.
> Q. And so I take it nobody from Express Scripts said to you that they were going to be increasing the discounts that they were offering to your plan to reflect those increases in the spread between wholesale acquisition cost and AWP as reported by First Databank?
> A. No. They never told us anything about the spreads or never disclosed anything about that. [p. 143]

HARVARD PILGRIM HEALTH CARE
Deposition of Andrea Grande, Harvard Pilgrim Health Care, October 11, 2006

- *Harvard Pilgrim Health Care had no knowledge of the Scheme*

Q. Are you aware of whether there has been any increase in the spread between WAC and AWP in the period since you have been the manager for corporate pharmacy programs?
…
THE WITNESS: No. [p. 47]

Q. I'll represent to you that in this lawsuit the plaintiffs, who seek to represent third-party payers in the United States, allege that the drug wholesaler, McKesson, and the drug pricing publisher, First Databank, conspired together to change the difference between WAC and AWP on about 40 percent of all retail branded drugs, resulting in – and to do that secretly, resulting in the AWP being about four percent higher than it otherwise would have been if McKesson and First DataBank hadn't gotten together and secretly changed the data in First DataBank's database, okay?
Assuming that what I've said is a fair characterization of the allegations in the lawsuit, before my telling you what this lawsuit was about, had you ever heard of that before?
A. No. [pp. 101-103]

HARVARD PILGRIM HEALTH CARE
Deposition of James T. Kenney, Harvard Pilgrim Health Care, October 11, 2006

- *Harvard Pilgrim Health Care had no knowledge of the Scheme*

Q. Prior to the time – Let's make sure we get the time frame correct – prior to the time that you first learned that Harvard Pilgrim had received a subpoena in connection with this lawsuit, were you aware of allegations that the wholesaler, McKesson Corporation, and the publisher, First Databank, had conspired to secretly increase the markup factors between average wholesale price – excuse me – average wholesale – yes – average wholesale price and the WAC in order to secretly increase profits to pharmacies and pharmacy benefit managers?
A. No. [p. 90]

HUMANA
Deposition of William Flemming, Humana, November 9, 2006

- *Humana had no knowledge of the Scheme*

Q. At any time, did you know that there was an agreement between FDB and McKesson to normalize all WAC'd [sic] AWP spreads at 1 point 25?
A. No.
Q. Is there a way you could have found that out?
A. I wish they would have told me. [p. 274]

Q. Okay, in summer of '04, did Argus report to you that they had an understanding that the WAC-to-AWP or AWP-to-WAC ratio had increased for some reporting services?

A. Yes. [p. 160]

Q. At any time did you – you talked about earlier about the surveys that First Databank did to determine and publish AWPs. Do you remember that?
A. Uh-huh.
Q. Are you aware that- at any time, that the surveys consisted of calling just McKesson and whatever McKesson said became the published AWP?
A. I – I would have no way of knowing that.
Q. Would that have, in an – any way, affected your trust in First Databank's AWP?
…
A. Well I mean, certainly, if – if one – if – if one source were the – were used to set the standard, it – it would raise questions. It would concern me. [p. 278]

- *Humana was harmed economically as a result of their inability to respond to the Scheme*

Q. And sitting here today, do you believe that that caused Humana to pay more money?
A. Yes. [p. 274]

- *If Humana had knowledge of the Scheme, they may have been able to mitigate it*

Q. Was the pricing change that occurred between 2000 and – late 2001 and early 2002 that we've been talking about, was that ever a – an abberant condition causing you to reexamine drug placement?
…
A. If – if I knew it was happening, we could have identified – perhaps identified it. We didn't know it was happening until it was too – til years later. [p. 275]

Q. Do – do you recall testifying that had you known about an increase in the WAC-to-AWP spread as published by First Databank, that you would have done something differently?
A. If we – if someone would have come to us and said that that re – relationship is changing, then that would have given us a different perspective to go to a retailer and say, "Something's change. Let's renegotiate the terms of our contract." No one came to us and said that. [p. 283]

- *Humana's contracts for brand drugs were AWP-based*

Q. For the period 2001 through 2005, Humana's contracts with pharmacies, just that reimbursement or payment –
A. Yea.
Q. – were they AWP-based?
A. Within the –within the contract, certainly, all the brand drugs were AWP-based. [pp. 280-281]

PHILADELPHIA FEDERATION OF TEACHERS HEALTH AND WELFARE FUND (PFTHW)
Deposition of Arthur Steinberg, October 18, 2006

- *PFTHW had no knowledge of the Scheme and was not aware whether their PBM, Express Scripts, had knowledge of the Scheme -- Express Scripts never informed the Fund of the Scheme or acted in a manner that showed knowledge of the Scheme*

> Q. Have you become aware at any time that Express Scripts learned that FDB had increased the spread on AWP for brand name prescription drugs?
> A. Within the past week or so.
> …
> Q. Has the Fund ever received a letter from Express Scripts advising about increases in AWP spreads by First Databank?
> A. No. [164:3 – 165]

> Q. At the time that you were considering retaining Express Scripts to provide your retail pharmaceutical benefit, did you expect that Express Scripts was going to go out and get the best discounts that it could get with its retail network and then pass those savings on to the Fund?
> A. I don't think I really even considered that. I was just looking at the bottom line overall cost to us, so...
> Q. If Express Scripts had learned in 2002 that FDB had increased the spread on AWP, was it your expectation that Express Scripts was going to go out and negotiate deeper discounts with its retail network?
> A. Are you asking at that time or now?
> Q. At that time.
> A. At that time I wasn't even aware of that, so I wouldn't have been able to consider it. [pp. 162-163]

- *PFTHW did not renegotiate during an existing contract with its PBM (Express Scripts) from 2002 through the present*

> Q. Now, if you turn to Page 20 of the Express Scripts contract, this is Production No. 3906, Exhibit A, entitled, "Prescription Drug Program Fees," are these the final economic terms that the Fund agreed to with Express Scripts?
> A. Yes.
> Q. So for retail drugs the ingredient cost was AWP less 16 percent or MRA if lower?
> A. That's correct.
> Q. And then for mail order the ingredient cost for brand drugs was AWP less 21 percent?
> A. That's correct.
> Q. And that continues to be the pricing today?
> A. Yes.
> Q. And the AWP less 16 percent continues to be the pricing for retail today?
> A. Yes.
> Q. And again going back to the mail order, the pricing on generics is AWP less 50 percent, correct?
> A. Yes.
> Q. And that was true in 2002 and continues to be true today?
> A. Yes.
> Q. And then there are various fees set out here?
> A. That's also correct.

Q. And those fees continue to be in place today?
A. Yes. [pp. 149-152]

- *PFTHW does not monitor drug utilization by individual drugs or drug categories, nor does the fund monitor anything in addition to bottom line costs*

Q. So you said that prudent management includes looking at the costs when they come in?
A. Yes.
Q. What do you look at?
A. How much we spend.
…
Q. Do you look at anything in addition to bottom line costs?
A. No, I don't.
Q. You don't look at utilization of particular drugs, for instance?
A. No, we really don't.
Q. Do you look at pricing trends for particular drugs or categories of drugs?
A. No.
Q. So other than looking at the invoices that come in every two weeks, is there anything else that you do to monitor the cost of the prescription drug benefit? And I'm focusing on the period from 2000 to the present.
A. No. [pp. 54-56]

Q. … Do you recall during 2003 focusing on the fact that certain brand drugs that your members commonly used were experiencing double digit price increases?
A. No.
Q. Is that something you ever focused on?
A. On particular drugs themselves –
Q. Yes.
A. – or just the overall costs? We really haven't had cause to yet, no. [pp. 85-88]

- *Despite language in the contract that allowed for material contract changes, PFTHW did not change the terms of its contract in response to the Scheme*

Q. So the sentence states, "Should changes in circumstances, the terms of ValueRx's contracts with pharmaceutical manufacturers regarding rebates, sponsor's members, or sponsor's plan have a material effect upon a party's ability to perform under this agreement, the affected party may notify the other party in writing of its desire to renegotiate this agreement within 30 days after the change had become apparent to the affected party." So looking at that further, do you agree with me that there are several conditions that are set out in Section 10.1 that could trigger the material change provision?
A. Yes.
Q. And one of them would be a change in circumstances not necessarily tied to rebates, correct?
A. That's correct.
Q. Was notice of a material change ever provided under this agreement?
A. No. [pp. 144-145]

PIRELLI ARMSTRONG RETIREES MEDICAL BENEFITS
Declaration of Earl W. Seymour, Pirelli Armstrong Retirees Medical Benefits Trust, October 19, 2006

- *Pirelli Armstrong had no knowledge of the Scheme*

Q. Prior to reviewing the complaint in this case, did you have any knowledge of the alleged fraud within it?
A. Was I aware there was a legal action prior to –
Q. No, were you aware of the facts that were go – that were alleged in the complaint?
A. No. [pp. 76-77]

PIRELLI ARMSTRONG RETIREES MEDICAL BENEFITS
Deposition of Donny Dowlen, Southern Benefits Administrator, October 19, 2006

- *Pirelli Armstrong did not have access to data that could allow it to become aware of the Scheme*

Q. Do you recall that you testified that you were not aware of the five percent increase in AWP?
A. Until I learned about it today.
Q. Right.
A. Okay.
Q. To the best of your knowledge, is there any data that is made available to you on a regular basis that could have made you aware of the five percent increase to AWP…across the board?
Q. No. [pp. 134-135]

Q. Assume for the time being that the allegations in the complaint are correct and that AWP was fraudulently inflated by at least five percent. Had that been the case, could you have seen that AWP inflation in the data that you are looking at in Exhibit 9?
THE WITNESS: No.
Q. Could you have seen that inflation in any type of data that is made available to you on a regular basis in the capacity of working at Southern Benefits?
THE WITNESS: No. [p. 133]

SELECT HEALTH
Deposition of Eric Cannon, Select Health, October 11, 2006

- *Select Health has not calculated or had formal discussions about the difference between AWP and WAC, nor does Mr. Cannon need to for the purposes of his job*

Q. Have you ever looked at the difference between WAC and AWP?
A. I have looked at them from the standpoint of when I look at a product in the database, I see two prices, one being AWP, and one being WAC. Have I calculated the percent difference, have I done some formal analysis, have I had formal discussions? No. [p. 58]

Q. You don't need to know the WAC –
A. No.

Q. – for anything you do in your job?
A. No.
Q. Do you know how First DataBank derives its AWP?
A. No.
Q. Do you need to know that for any aspect of your job?
A. No. [p. 89]

- *Select Health reimbursement rates to pharmacies are based on AWP*

Q. BY MS. MAHONEY: Eric, you stated earlier that your reimbursements rates to pharmacies is based on AWP; is that correct?
A. Yes. [pp. 142-144]

TEAMSTERS HEALTH AND WELFARE FUND OF PHILADELPHIA
Deposition of William Einhorn, Teamsters Health and Welfare Fund of Philadelphia, October 5, 2006

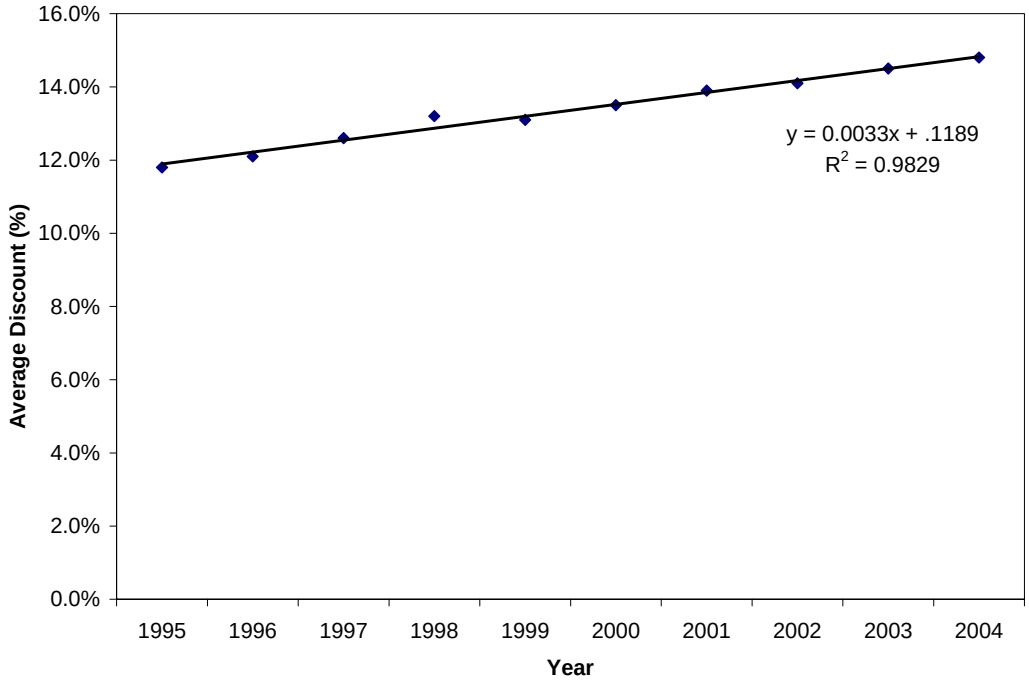
- *Teamsters Health and Welfare Fund of Philadelphia (THWF) had no knowledge of the Scheme*

Q. And had you heard from any source other than your counsel that First Databank had increased the AWP by a multiple of 1.25?
…
A. The answer to the question that you just posed is no. [p. 106]

Attachment E

Attachment E: Regression Analysis

Figure E.1: Average Retail Reimbursement Discount off AWP for Brand Drugs (1995-2004)



Retail: Average Discount
Regression Results
Where Time=0 when Year=1995

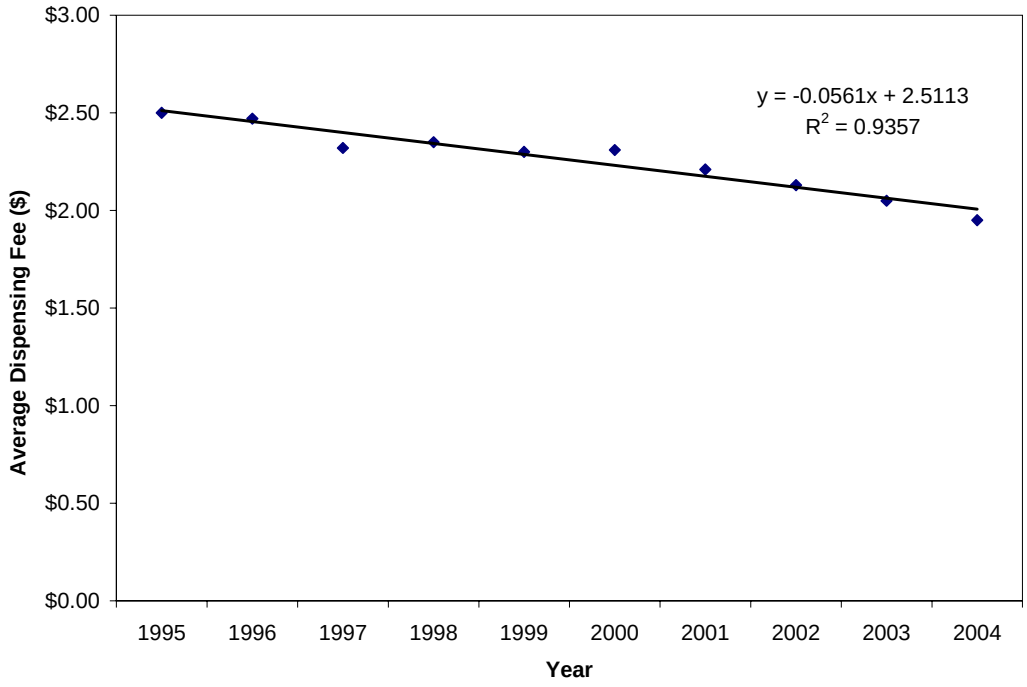
The REG Procedure
Model: model
Dependent Variable: Retail_Average_Discount Retail - Average Discount

Analysis of Variance					
Source	**DF**	**Sum of Squares**	**Mean Square**	**F Value**	**Pr > F**
Model	1	0.00087710	0.00087710	458.71	<.0001
Error	8	0.00001530	0.00000191		
Corrected Total	9	0.00089240			

Root MSE	0.00138	**R-Square**	0.9829
Dependent Mean	0.13360	**Adj R-Sq**	0.9807
Coeff Var	1.03503		

Parameter Estimates						
Variable	**Label**	**DF**	**Parameter Estimate**	**Standard Error**	**t Value**	**Pr > |t|**
Intercept	Intercept	1	0.11893	0.00081274	146.33	<.0001
time		1	0.00326	0.00015224	21.42	<.0001

Figure E.2: Average Retail Dispensing Fee for Brand Drugs (1995-2004)



Retail: Average Dispensing Fee
Regression Results
Where Time=0 when Year=1995

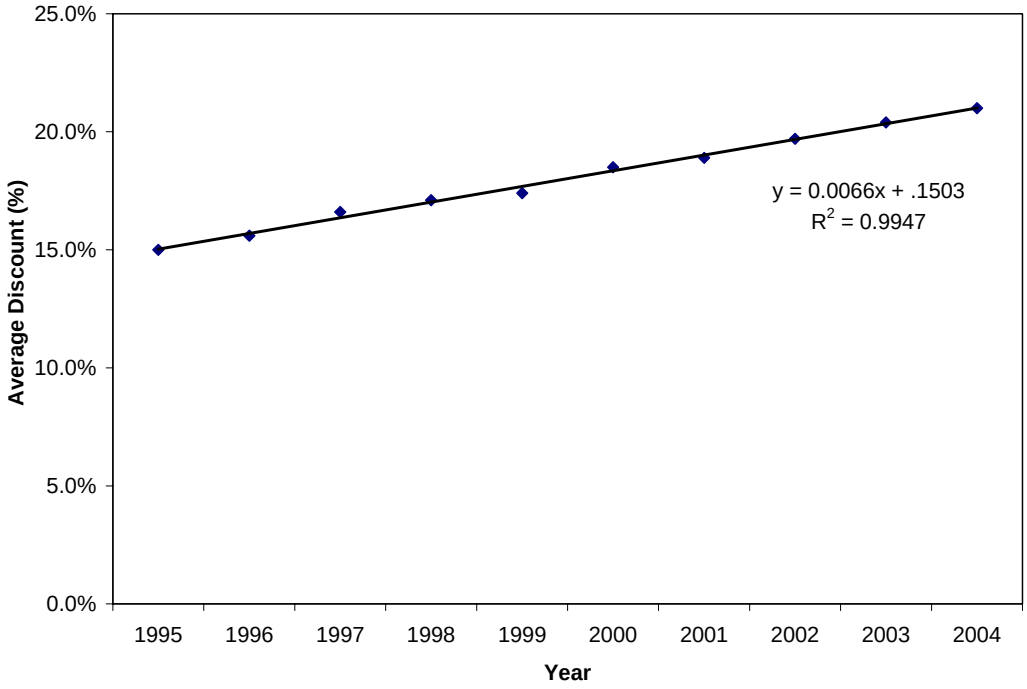
The REG Procedure
Model: model
Dependent Variable: Retail_Average_Dispensing_Fee Retail - Average Dispensing Fee

Analysis of Variance					
Source	**DF**	**Sum of Squares**	**Mean Square**	**F Value**	**Pr > F**
Model	1	0.25928	0.25928	116.47	<.0001
Error	8	0.01781	0.00223		
Corrected Total	9	0.27709			

Root MSE	0.04718	**R-Square**	0.9357
Dependent Mean	2.25900	**Adj R-Sq**	0.9277
Coeff Var	2.08866		

Parameter Estimates						
Variable	**Label**	**DF**	**Parameter Estimate**	**Standard Error**	**t Value**	**Pr > |t|**
Intercept	Intercept	1	2.51127	0.02773	90.56	<.0001
time		1	-0.05606	0.00519	-10.79	<.0001

Figure E.3: Average Mail Order Reimbursement Discount off AWP for Brand Drugs (1995-2004)



Mail: Average Discount
Regression Results
Where Time=0 when Year=1995

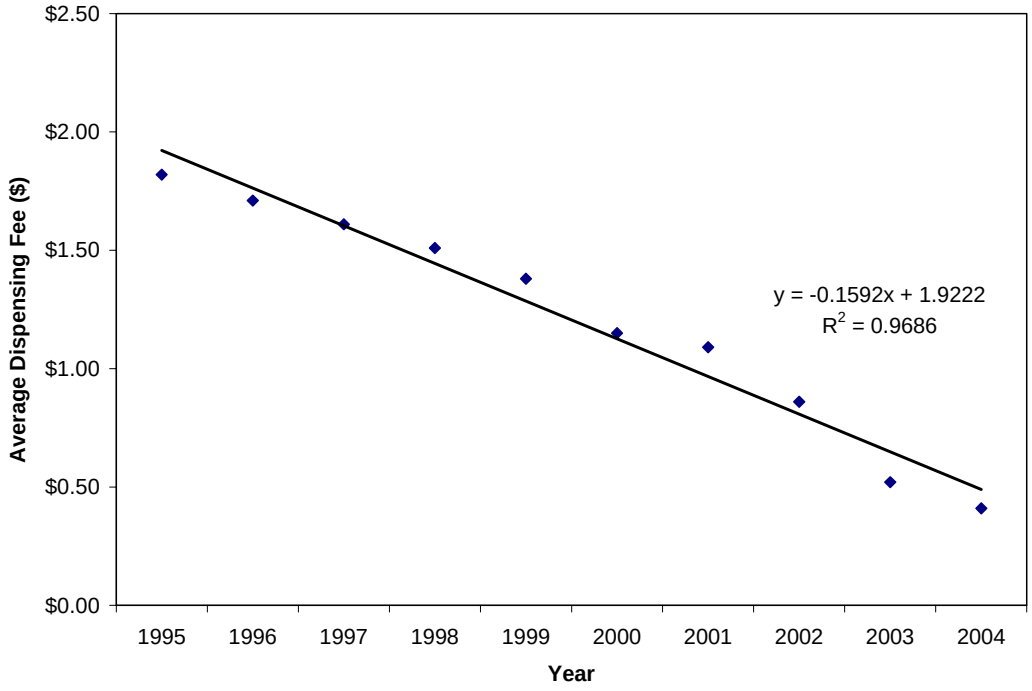
The REG Procedure
Model: model
Dependent Variable: Mail_Average_Discount Mail - Average Discount

Analysis of Variance					
Source	**DF**	**Sum of Squares**	**Mean Square**	**F Value**	**Pr > F**
Model	1	0.00364	0.00364	1489.42	<.0001
Error	8	0.00001955	0.00000244		
Corrected Total	9	0.00366			

Root MSE	0.00156	**R-Square**	0.9947
Dependent Mean	0.18020	**Adj R-Sq**	0.9940
Coeff Var	0.86754		

Parameter Estimates						
Variable	**Label**	**DF**	**Parameter Estimate**	**Standard Error**	**t Value**	**Pr > |t|**
Intercept	Intercept	1	0.15031	0.00091884	163.59	<.0001
time		1	0.00664	0.00017211	38.59	<.0001

Figure E.4: Average Mail Order Dispensing Fee for Brand Drugs (1995-2004)



Mail: Average Dispensing Fee
Regression Results
Where Time=0 when Year=1995

The REG Procedure
Model: model
Dependent Variable: Mail_Average_Dispensing_Fee Mail - Average Dispensing Fee

Analysis of Variance					
Source	**DF**	**Sum of Squares**	**Mean Square**	**F Value**	**Pr > F**
Model	1	2.08966	2.08966	246.64	<.0001
Error	8	0.06778	0.00847		
Corrected Total	9	2.15744			

Root MSE	0.09205	**R-Square**	0.9686
Dependent Mean	1.20600	**Adj R-Sq**	0.9647
Coeff Var	7.63239		

Parameter Estimates						
Variable	**Label**	**DF**	**Parameter Estimate**	**Standard Error**	**t Value**	**Pr > |t|**
Intercept	Intercept	1	1.92218	0.05410	35.53	<.0001
time		1	-0.15915	0.01013	-15.70	<.0001

Attachment F

Attachment F: Summary of Selected McKesson Documents

McKesson documents confirm:

- the benefit of the increase in the AWP/WAC spread to its customers (retailers):
    - "… few people seem to understand the positive impact on our customers' profitability … This is extremely significant and people need to understand this impact." (email from Robert James to Greg Yonko re AWP Situation Status, April 25, 2002, MCKAWP0069615-16 at 0069616)
    - "The chains certainly are aware of this and are very appreciative of our efforts because they understand the profitability associated with higher AWP's." (email from Robert James to Larry Secrest re AWP Variance, September 18, 2001, MCKAWP 0068514)
    - "AWP really has no impact on our wholesale business but certainly does on our customers' third party reimbursements. As you know we have been doing everything possible to raise AWP's where we can and we have had some recent success with FDB as we discussed." (email from Robert James to Greg Yonko, re AWP Change, October 9, 2001, MCKAWP 0068599)
    - "I know that Albertsons both recognizes and appreciates our efforts with the AWP situation. This has most likely had a very positive impact on their gross profits." (email from Robert James to Greg Yonko and Anthony Dolan, re Albertsons Contract Renewal, June 17, 2002, MCKAWP 0084485)
    - Regarding the increase of Avonex and Copaxone from a 20% to 25% spread: "This should make a significant contribution to your profitability as illustrated by the following example using a reimbursement of AWP-15% plus $2.00 fee …" (email from Robert James to Karl Lirette and Paul Clinkscales, re Avonex & Copaxone, April 12, 2002, MCKAWP 0084327)
- the continued benefit of the 5% Scheme to its customers even in 2004, certainly suggesting that the increases due to the 5% Scheme were not negotiated away:
    - "… things have pretty much normalized at a 20% spread (1.25 markup) for Brand Rx, which has been extremely beneficial for our customers." (email from Robert James to Chad Lucero re Medicis AWP's, April 20, 2004, MCKAWP 0071694)
    - "We try to 'push' the AWP up to 25% above WAC rather than 20%. This may cause your customer some short term reimbursement pain with the payors but in the long run, if AWP at First Data Bank goes from 20% to 25%, your customer will benefit." (email from John Bonner to Benjamin

Coppolo, re Price change, with sensitivity: Confidential, MCKAWP 0076289)

- the existence of industry trends:
  - "Most of the confusion surrounding AWP's is not new. This has been going on for years. The awareness level is increasing as our customers are looking at everything imaginable to improve their profitability because of the decreasing trend in third party reimbursement rates." (MCKAWP 0069615-16 at 0069616)